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Desert River Through Navajo Land

By Alfred M. Bailey

With Illustrations from Photographs by the Author and Fred G. Brandenburg

CLOUDLESS skies greeted us as we stood on the shores of the San Juan, ready to start our 200-mile journey down the swift river.

Originally, eleven of us had planned to make the trip in three boats. But as we dropped down the winding trail along the cliffs of the river, a dusty automobile drove up and its occupants, a young couple, hailed us. They were honeymooners, they announced, and they wanted to go along.

Here was a problem. None of us was superstitious, but adding two would give us a party of thirteen!

The newcomers were strangers, and we soon inferred that this was the bride's first venture west of Philadelphia. However, the groom was well acquainted with the West and vowed he could handle a boat.

We considered the matter gravely. Shooting the San Juan's rapids is a glorious lark, safe enough when ordinary precautions are observed, but the river is a willful one, swift to punish those who approach it with too little respect. One wrong move can turn fun into disaster.

13 Aboard Four Plywood Boats

But young love prevailed, and Norman D. Nevills, the leader of our expedition, ordered another boat hauled down to the shore. It was shoved overboard and christened the *Honeymoon Special*. We never had cause to regret our decision.

So off we went—thirteen persons in four of the sturdy plywood boats which Nevills, an explorer and self-styled "river rat," designed especially for bucking the turbulent waters.

Our starting point was Mexican Hat, which appears only on large-scale maps of Utah and consists of the Nevills's home and lodge plus a few oil wells. The tiny settlement takes its name from an eroded rock formation resembling a gigantic inverted sombrero balanced atop a tall column (page 154).

An early explorer in this region said that this monument rested upon such a fragile neck that it would soon tumble to the desert floor. A hundred years have passed since he made that prediction—and the hat is still there.

Assisting Nevills were other "white water" veterans—Wayne McConkie, a biology teacher from Moab, Utah,* who told me he learned more of Nature on his vacation journeys down the river than from his textbooks, and Don Bonduraut, a civil engineer who was on leave from his War Department job.

In Nevills's boat, the *Music Temple*, were Marjorie and Francis Farquhar and Randall Henderson, editor of Desert Magazine. With Bonduraut in the *San Juan* were Maj. Weldon F. Heald and the Reverend Harold Baxter Liebler, an Episcopal missionary who, through his years of work among the Navajos, has become known as "Father" Liebler, or the "Padre of the San Juan."

McConkie's companions in the *Hidden Passage* were Fred Brandenburg, my associate at the Colorado Museum of Natural History in Denver; my daughter Pat and myself. The newlyweds, Frank and Marjorie Cooke, aboard the *Honeymoon Special*, made up the rest of the party.

* See "Utah's Arches of Stone," by Jack Breed, in this issue of the National Geographic Magazine, page 173.

Rocks, Sky, and Water Frame a Breakfast Nook on the Colorado

Norman D. Nevills, explorer and "white water" veteran (center), turns out flapjacks for hungry fellow campers. Frank Cooke (left) photographs the scene in Glen Canyon near the mouth of the San Juan (pages 155 and 158). After breakfast the party explored Hidden Passage, a long, narrow side canyon, its entrance marked by the dark shadow (upper left).

Our boats were shoved off, one by one, and quickly caught by the swift current (page 159). The *Honeymoon Special* all but vanished in a great trough and the bride got a thorough dousing in the first hundred yards of the journey. It was a small matter, but a hint of things to come. Waves frequently broke over the bows and wet all of us. But we thoroughly enjoyed the experience for most of the journey down the San Juan and Colorado to Lees Ferry, Arizona (map, page 153).

Since my job was making pictures of the expedition, I stayed ashore to photograph the others as the current swept them around a bend. Then, with Doris Nevills as guide, Farquhar and I traveled overland to await the arrival of the boats in the famous Goosenecks (Plate III).

Here, looking down, we saw the San Juan threading its way between the terraced walls of a canyon 1,500 feet deep. Formation of the Goosenecks began some millions of years ago when the San Juan meandered across the landscape and then was trapped as the plateau began to rise.

Goosenecks a Scenic Spectacle

Today the river makes five majestic bends between these towering walls, twisting back on itself so that it journeys 25 miles to cover an airline distance of five, on its way to join with the Colorado in seeking the sea.

Known to geologists as a magnificent example of "entrenched meander," the Goosenecks present a truly remarkable spectacle in a land of scenic splendors.

A Boat Almost Vanishes in a Miniature Ocean of Sand Waves

Movement of sediment on the bottom is believed to cause these hazardous billows, encountered in relatively placid stretches of the San Juan. The oarsman (center) struggles to keep his boat broadside to the current, rolling with the breakers. His passengers, bobbing up and down as if riding a seesaw, watch a sister craft downstream.

When the boats appeared far below us, they seemed mere glistening white toys as they moved dreamily with the current.

Also visible from our lofty vantage point was a strange rippling pattern on the river's surface. This was caused by the famous "sand waves" of the San Juan, waves that roll and break just like those of the ocean.

Several explanations have been advanced for the sand waves; the one most widely accepted is that they are caused by the movement of a great deal of sediment on the bottom.

While the others of the party beached their craft and waited on the shore, Farquhar and I dropped down the steep walls on the old Hunter Trail which follows along the ledges by a series of switchbacks. We reached the river easily after a couple of hours of travel.

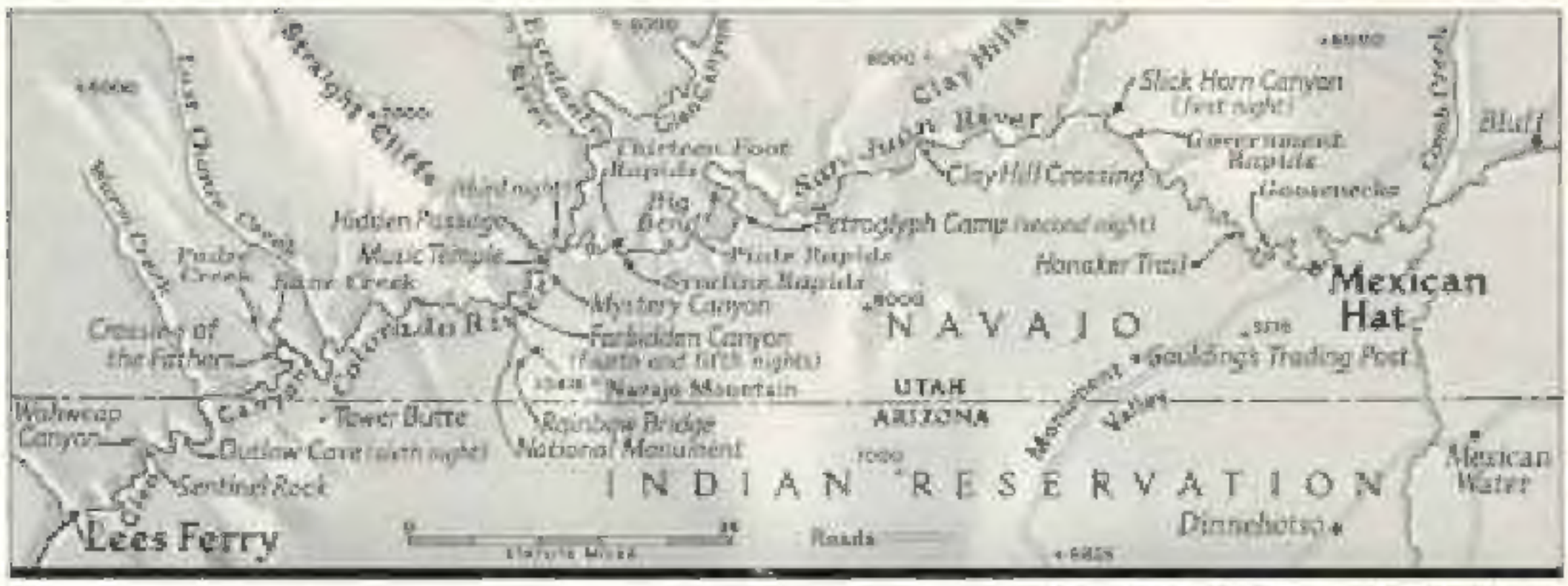
Once you start on this trip, you are committed to it, for the river flows between steep cliffs. You can climb out in many places, but after you get out there is no place to go. There are no roads leading along the canyon of the San Juan.

With all thirteen of us aboard our boats, we were off again, drifting easily between gray cliffs so steep that it would be impossible to climb them. In places where the canyon narrowed, the current ran swiftly—and the fun began.

There is a special technique in "white water" seamanship, and Government Rapids gave our oarsmen their first real test. As we swept into them, I remembered that they got their name because two survey boats of an

Near Journey's End, Two Voyagers Try the Lumberjack's Art on a Drifting Log

Steep sandstone cliffs, crowned by craggy battlements, form a backdrop for this bit of sport on a quiet stretch of the Colorado. Near here the party camped in Outlaw Cave, former hiding place of horse thieves, and read the names of early explorers inscribed on its walls. Next day, after a visit to Wahweap Canyon, the author and companions landed at Lees Ferry, Arizona (page 164).



Drawn by Theodore Price and Irvin E. Altman

Barren Wasteland Trod by Few White Men Borders the Serpentine San Juan

From Mexican Hat, Utah, to Lees Ferry, Arizona, the author's party drifted 200 miles to cover an airline distance of less than 100. West of Thirteen Foot Rapids the San Juan merges with the Colorado in Glen Canyon. The voyagers left their boats beside prehistoric ruins in Forbidden Canyon and hiked overland to visit isolated Rainbow Bridge and explore numerous side canyons (Plate VI and pages 162-3).

early exploration party were wrecked here.

Entering the rapids, Neville and his boatmen always keep the bow upstream. Thus the boatman faces downstream and can keep an eye peeled for half-submerged boulders. By pulling adroitly on one oar or the other, he can keep his craft out of trouble (Plate IV).

Shooting the Rapids

Shooting the rapids is an exhilarating experience, especially for neophytes. The boat bobs, bucks, and plunges like an unbroken colt as, guided by the sweating oarsman, it weaves between the rocks. Over the stern—actually the downstream end of the boat—come sheets of water to be bailed out when a quieter stretch is reached. Clothes become soaked, but dry quickly under the desert sun. Swimming suits and canvas sneakers are the favorite costume for travel.

There is scant vegetation along the walls of the canyon, and very little in the way of animal life. A few violet-green swallows and white-throated swifts sailed against the blue, and during the first afternoon we saw four bighorn sheep near the water's edge.

As we approached, the bighorns quickly climbed the rock-strewn slope to the base of the cliff, leaping nimbly from boulder to boulder. When we came abreast of them, they stopped and one fine ram stood in sunlight, silhouetted against the black background for a moment. Then all four turned and disappeared around a jutting promontory.

Our first day's run was 40 miles to Slick Horn Canyon, where we camped (pages 156, 157). It was the site of an old mining operation, one of several encountered en route, where hardy folk had scratched unsuccessfully for gold and silver in paying quantities.

When we awoke it was Sunday. The first glimmer of gold bathed the top of the opposite canyon wall, and long before the glow descended to the swift water of the river McConkie had sounded the call to Sabbath services by beating a frying pan.

Padre Liebler was ready with his vestments and conducted an Episcopal service in as beautiful a cathedral as has ever been used as a place of worship. Age-worn rock of a low ledge served as an altar, and the quiet waters of a crystal pool reflected the morning light as the sun climbed higher.

After a good breakfast we shoved off and traveled for miles between high walls which dropped straight to the water. Gradually the gray rocks changed to the vermilion Wingate and Navajo sandstone formations; the cliffs lowered, and the river widened at the historic Clay Hill Crossing where side canyons gave approach to the shallow waters.*

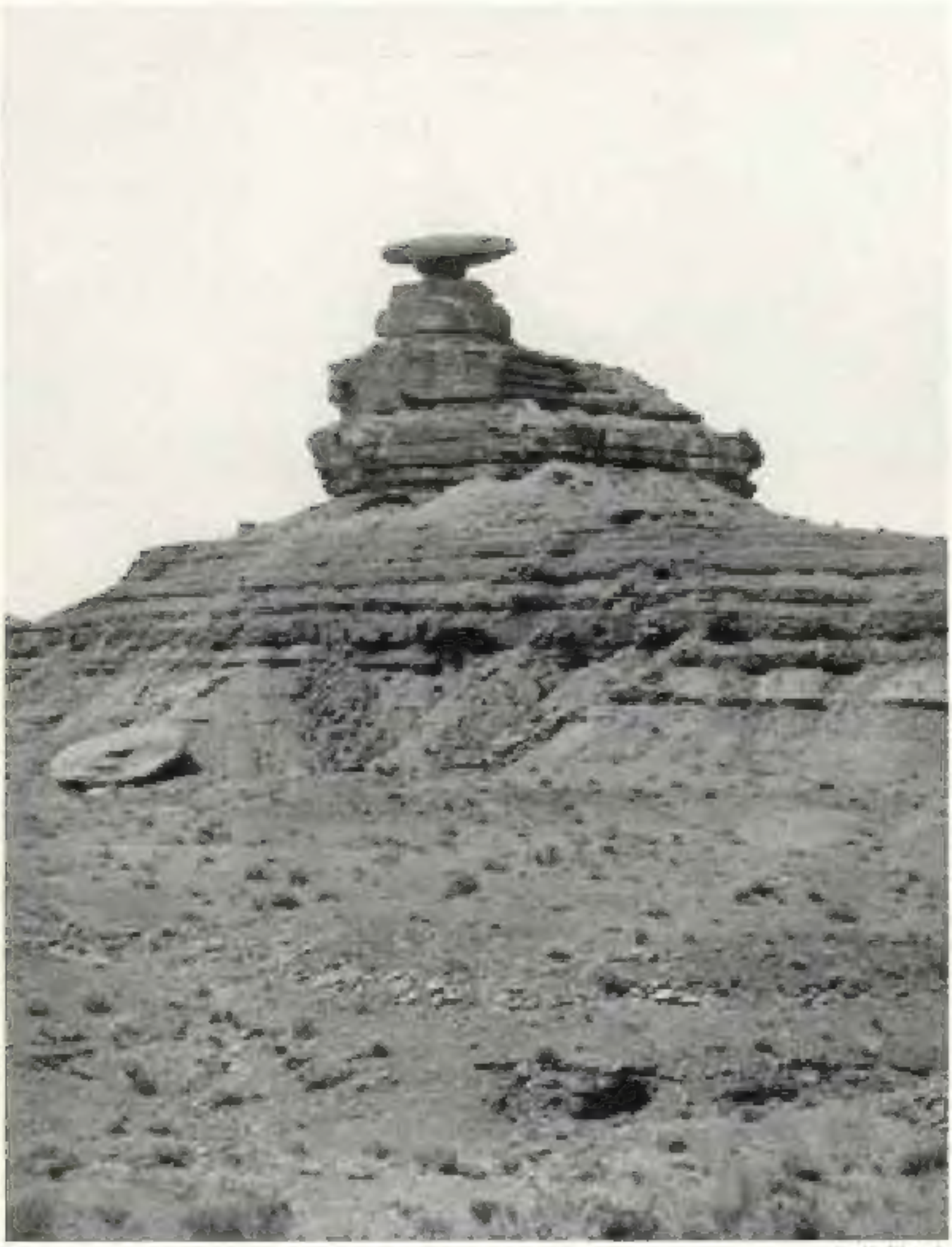
Where Pintes Farmed

It was on the level lands of this fording place that the Pinte Indians farmed in the old days, laboriously irrigating their fields of corn with water from the muddy San Juan.

We had a rather difficult time in the wide reaches of the river, for the water was so shallow that boats were constantly being grounded and it was necessary to go overboard to shove them along. A great deal of good-natured name calling ensued whenever a fortunate boat caught a deep channel and rapidly passed another caught on a bar.

One of the fine views during the afternoon

* See "Beyond the Clay Hills," by Neil M. Judd, NATIONAL GEOGRAPHIC MAGAZINE, March, 1924.



B. P. Flood

An Upside-down Stone Sombrero Crowns Lofty Mexican Hat

Near this Utah landmark the author's party started down the San Juan. The hat, 62 feet wide across the brim, balances atop a red-shale mound nearly 400 feet high. A century ago an explorer predicted it would soon fall to the desert floor (page 149).

was of a tall butte, a red mass against the dark-blue sky, with a foreground of willow and green cane.

The trip down the San Juan is a constant delight because of the ever-changing vistas through a region where no one is seen along the shores. It is a world apart, with three or four people to a boat, all dawdling at ease, the boatmen merely keeping the stern downstream, pulling occasionally to miss a boulder and the rest of the time helping the passengers solve the problems of the world.

Sand Waves Cause Trouble

The current carries the boat along at its own pace, now fast through rapids and again slowly over the calm stretches.

On the second day's run, big sand waves were constantly building up, breaking, and often filling our boats with water. With rapids to run, sand waves breaking at unexpected moments, and swift currents throwing us into the boulders, it was natural that people should go overboard occasionally.

Our experiences were not different from those of others, for practically everyone took an unexpected plunge sometime during the trip. The second afternoon the *Honeymoon Special* hung precariously on a rock, with the current threatening to capsize it, while the newlyweds climbed for the high side and tried to rescue movie cameras from threatened disaster.

Our camp the second night was at the Big Bend, 88 miles from Mexican Hat. Because of pictures on the rocks, drawn by some primitive artist generations ago, we called this the Petroglyph Camp.

Pat and I threw our bags down alongside one great boulder which had been decorated with curious figures, and we wondered how many hundreds of people through the ages had taken shelter in the same place.

The third day's run down the San Juan is through some swift water, hardly comparable to the Grand Canyon of the Colorado, but nevertheless through jagged channels which necessitate careful piloting.

Navajo Mountain, the great landmark in that part of the world, thrusts its head 10,416 feet toward the sky,* and we were able to get occasional glimpses as we traveled along the

* See "Exploring Navajo Mountain with a Pack Train," by Charles L. Bernheimer, National Geographic Magazine, February, 1923.

beautiful straight-walled red canyon.

Piute, Syncline, and Thirteen Foot Rapids were run in quick succession, without incident other than the filling of the boats with water.

Slow-motion pictures made from the bank show the boats disappearing from sight and enthusiastic passengers enjoying the thrill of their lives as they emerged from the flying spray.

In the late evening we reached the junction of the San Juan and Colorado Rivers. While the others waited, our boat traveled ahead that we might climb the mountain on the far shore of the Colorado to photograph the others as they emerged from the shadows into Glen Canyon (page 158).

No Laughing Boy Is Joe Navajo, Junior

Before tackling the San Juan, the author visited the Navajos of Monument Valley. Here he found mothers still strapping their babies to cradleboards like those of Basket Maker times. A hoodlike arrangement shields the youngster's eyes from the sun (Plate I).

A Quiet Stretch of the Colorado

It is an isolated region which has been visited by only a few. There are no signs of habitations—just cliffs and narrow shores grown with willows and tamarisk, and rounded, wind-blown rocks of red sandstone which have been incised by the winds of untold centuries.

We had now entered the peaceful stretch of the Colorado,* where it runs swiftly for 80 miles through the last half of beautiful Glen Canyon, named by John Wesley Powell on his first expedition, because of little amphitheaters and wooded caves which broke the overhanging walls.

The sand waves and rapids of the San Juan were behind us, but still ahead were scenic and historic places—Music Temple, Rainbow Bridge National Monument, and the Crossing of the Fathers—so far from the beaten path that only a privileged few have visited them.

Our evening camp was on a bar a short distance below the meeting place of the two rivers, and I was out of my bag before sunrise the following morning to photograph the golden glow descending from the summits of the hills beyond. The camp slowly came to life, and while McConkie fried ham, bacon, and eggs, Nevills started throwing flapjacks with reckless abandon. It is surprising how much food can be disposed of by people having a good time (page 150).

The fourth day was given over to the leisurely exploration of side canyons. Hidden Passage, a narrow valley lined with straight

* See "Surveying the Grand Canyon of the Colorado," by Lewis R. Freeman, NATIONAL GEOGRAPHIC MAGAZINE, May, 1924.

Honeymoon Special Drifts Warily Down upon Breaking Rocks Below Slick Horn Canyon

The Party Camped on a Gold Miner's Site, Held Sunday Services in a Rock-walled Cathedral

Near the Arizona Border, Two Rivers Meet in a Wasteland of Tawny Sandstone

White Water Ahead! Into Specially Constructed Boats Goes Equipment for 200 Miles of Adventure

[illegible]

Shadows Blacken the Towering Walls of Rainbow Bridge Canyon

[illegible]

Tuweap Chamber Over Shakespeare "Where Saints and Heroes Tread"

[illegible]

[illegible] was [illegible] in bloom.

Where "Old Study" Sang

[illegible] the river was Music Temple, where [illegible] Frank [illegible] Professor of the National Geographic Society, said in his [illegible]

[illegible]

[illegible] to-born architect; so we named it Music Temple.

No light [illegible] photography, but it was [illegible] walls we found the names of William H. Dunn, of the first Powell expedition, who with two other men [illegible] when he left the [illegible] others of the 1871-72 expedition.

[illegible] Mystery Canyon [illegible] Lake [illegible]

[illegible]

When Tired of Drifting, One Can Always Get Out and Swim

[illegible] Vaughn [illegible] Crossing of the Fathers. In the boat, Norman Neville handles the oars, with Frances Farquhar Orth, of the Sierra Mountain Club, and Ran al Henderson, editor of Desert Magazine, as passengers.

and grass and walls so perfectly that it was difficult to tell where reflection ended and reality began (Plate VII).

Our boats worked through the narrow passageway for several hundred yards, and then we hiked to a great domed room with gently sloping banks grown with ferns and columbines, and with a dark swimming pool that offered an irresistible lure.

A short distance beyond Mystery Canyon, on the opposite side of the river, was another narrow passageway with vast curving amphitheaters cut from the solid rock by rushing water carrying rounded boulders as grinding agents.

The stream bed was filled with the worn stones, which no doubt had been carried many miles by the floods that occasionally rush down the narrow channels. At the entrance was an overhanging rock in deep shade, where an Indian artist of long ago had depicted animals of the region.

Then as twilight descended on the desert river, we made Forbidden Canyon, another overhanging cliff with narrow shelves. We spread our bags alongside prehistoric ruins that were still further reminders of the people who had lived in this remote area and passed [illegible] by leaving the world about us they found it—no better, or no worse, for their having spent their brief span of years.

The winding stream leading through the canyon for a short distance was full of catfish, and we caught a fine string, so that a bacon and fish breakfast fortified us for the 12-mile hike ahead.

To Rainbow Natural Bridge

Forbidden Canyon is the starting point for the overland trek to one of the scenic wonders of our great American desert—the Rainbow Bridge, made known to the world by Prof. Byron Cummings and his guide, John Wetherill, the trader to the Navajos, back in 1909.

Another party under leadership of W. B. Douglass, of the United States General Land Office, also visited the bridge at the same time. Nashja-begay, a Piute who had already seen [illegible] the [illegible] day of the trip.*

We started early, loaded down with [illegible] and cameras, and wound along in single file through the deep shadows cast by steep walls.

It was over four miles along the rocky floor of the canyon, which widened in places so there were dense stands of scrubby vegetation with flowering spikes of yucca thrust skyward, to the tributary which leads to the bridge. There in the shadows was the name of Ellsworth L. Kolb, famous in the annals of river exploration, with an arrow to indicate the direction to the bridge, another mile and a half beyond.

And what a journey it was! Massive overhanging cliffs black against patches of sunlight; glistening pools of crystal-clear water which constantly beckoned; the fluttering of ash-throated flycatchers against the blue as they sailed from one scraggly limb to another, and the echoing calls of the canyon wrens. It was cool along the canyon floor; so the trouble like was just one more enjoyable experience (page 160).

The Rainbow Bridge is well hidden below towering walls, so when we rounded an abrupt bend we were not prepared for the breathtaking beauty of this span of wind-smoothed rock arching more than 300 feet above the creek bed (Plate VI).

Here was one of the isolated monuments of our country, for it can be visited only by hiking from the shores of the Colorado River or by a long overland pack-train trip. Before us at last was *Nonnezoshi*, the great "hole in the rock," or "arch" of the Navajos, or *Barege-hoind*, the "rainbow" of the Piutes. It is the largest known natural bridge in the country, unless one visited by Norman Nevills in a remote wilderness proves to be larger.

A Marvel of the Southwest

Rainbow is of reddish-brown sandstone, laid down in the Jurassic period when dinosaurs roamed over the western States, and was formed by a meandering stream cutting on both sides until an opening was made, allowing the stream to straighten its course. Through the centuries the walls have been worn and polished by winds and rains, and today we have one of the geological marvels of our Southwest.

Since then, many notable people have journeyed to view the great arch, and we enjoyed running through the pages of the ledger in its weatherproof box.

Some twenty-one years before our visit Stephen S. Johnson, using the Navajo name for the bridge, had inscribed:

NONNEZOSHIE

Nonnezoshie, arch of stone
[illegible]
Worshipped by the wandering Indian.

As a God to fear yet reverence
Placed by Him who carved the Universe.
In a spirit of fearful grandeur
Far from human habitation

Grandest shrine that eye may rest on
Waits us at our journey's ending
When we see your monster kept alone
Bathed in gold of desert sunshine
Nonnezoshie, born of Utah.

And some unknown, no doubt greatly impressed, had written:

Sublime, inventive ever young
Of vast conception and flowering temple
To God the eternal theme

Then R. M. G. added the following:

A handstand—cartwheel—yell on top
It seems at scratching more will stop
To do the deeds they'll never falter
Those same would jig upon an altar
If you would be a handstand—cartwheel—yeller be
Do it somewhere else than Nonnezoshie

And someone, a cynic, I fear, objected to something on the opposite page:

A good example of the attitude of many of the thin-chested anemic Hank's cousins who should be great clerks instead of government men in a country as wonderful as this—and by the way one they never will understand.

We ate our lunch in the shade of small trees at an ever-running spring, and then Marjorie Farquhar, Major Heald, and Randall Henderson climbed the arch. A rope was needed to get from the canyon wall to the bridge, and then the climb was fairly easy.

The return six miles down the canyon with evening shadows massing black was pleasant. The young women had counted the crystal pools and had estimated they could swim a third of the way back to camp, but their enthusiasm were off after the tenth or eleventh plunge. Nevills, faster on his feet than the rest, was first in camp and had supper under way by the time we straggled in.

The sixth day of the journey was between upright walls of red stone through some of the most beautiful desert country of America. Violent winds have swept the "slickrock" clear of soil, so that there are vast expanses of polished rock blistering in the sun.

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, Vaux, "Rainbow Natural Bridge of Southern Utah," by Joseph E. Pogue, November, 1911.

This is the region made famous by Fray Francisco Silvestre Vélez de Escalante and his companions because of their journey in 1776. [illegible] they followed along the overhanging cliffs on the north side of the canyon, hoping to find a way to get to the river and a ford across to the opposite bank.

Finally, after many hardships, they discovered a route from the barren plateau over slickrock to the creek bed below. Many of the landmarks are so well named that one has no difficulty in recognizing them, particularly Tower Butte, which is an isolated red formation thrust against the ever-blue skies.

Desiring to visit the Crossing of the Fathers, we landed at Kane Creek about one mile above Padre Creek. It was necessary to travel by a roundabout route over slickrocks so hot that they raised blisters on Major Heald's fingertips when he attempted to scale some difficult slopes (page 161).

There is an ancient trail dimly visible across the parched rocks, a pathway probably polished through the centuries by moccasins of natives. The route was along the ridges skirting high over Padre Creek and finally winding down toward the trickle of water below.

Hardships of an Early Explorer

Padre Liebler, Frank Cooke, and I, loaded with cameras, scrambled down the dimly marked course, for we desired to photograph the steps cut in the hard rock over which Escalante had descended to the creek below.

Escalante inscribed in his *Journal*, November 7, 1776: "To lead the animals down by their bridles to the canyon, it was necessary to hew steps with an ax in a rock for a distance of three yards or a little less. The animals would go down the rest of the way but without pack or rider."

The parallel grooves are still visible after nearly 175 years of weathering. Padre Liebler descended in Escalante's footsteps, "where Saints and heroes trod," and we ground off a bit of color film that we might have a record of this historic spot which has been viewed by only a handful of people.

Later, as we passed Padre Creek on our way down the river, we saw the plaque erected in memory of the courageous churchmen, and we photographed the fording place.

Escalante states that after they reached the river "we went down along it for a distance of two gunshots, now through water, now along the shore, until we reached the widest part of the stream where the ford seemed to be." It was a colorful place, little changed by time.

We crossed from Utah into Arizona at Warm Creek, and on the overhanging wall, during a period of low water, Norman Nevills and Barry Goldwater, some years previously, had marked the State line. They had added, "Arizona Welcomes You."

A Haven for Horse Thieves

Our last night's camping place was in Outlaw Cave, so named because it was a former hiding place for horse thieves. As we spread our blankets in the sands that evening and contemplated the stars, Nevills came over and said to Pat, "You know, the last trip down, I killed the biggest rattler I've seen in the canyon, right where your bag is!"

On the wall of the cave are the names of river explorers, including Nate Galloway, who was one of the first to use the technique of going into the rapids sternfirst. Galloway was a trapper who made two trips down the Colorado from Wyoming in 1895 and 1896 and one in 1909 from Utah.

The seventh and last day of the trip was over quiet waters lined with the usual perpendicular walls thrust toward the cloud-flecked blue. We could see a difference in the vegetation, for many agaves—century plants—with their tall flowering spikes were visible wherever the cliffs broke away (Plate VIII). A great log piled on a rock intrigued Nevills; it was shoved off, and different members of the party enjoyed a ride until it was finally stranded.

We ran behind Sentinel Rock into Withcomp Canyon, where there was drinking water, and then continued on to Lees Ferry, named for the ill-starred John Doyle Lee, who was executed for his part in the Mountain Meadow Massacre of 1857.

And so ended our journey along the border of Navajo Land. It came so abruptly we were not prepared, for we had been traveling for days without seeing anyone but the members of our own group.

We had rounded a bend, and there before us was civilization as represented by a welcoming party awaiting our arrival. Our trip was over, except for a short visit among the Navajos in Monument Valley, and in retrospect we have the memories of some of the most beautiful desert scenery in this grand land of ours.

INDEX FOR JANUARY–JUNE, 1947 VOLUME READY

Index for Volume XCII (January–June, 1947) of the NATIONAL GEOGRAPHIC MAGAZINE will be mailed upon request to members who bind their copies as works of reference.

Hold Still, Nanny! Milking a Balky Navajo Goat Is a Four-and-all Job

Two Jobs—Rocking Children and Weaving Rugs Occupy Navajo Women

Between Monument Valley's Towering Wells, Navajo Sheep and Goats Trail Along in Their Endless Quest for Food

Carving Through the Gorge, a Chasm 1,500 Feet Deep, the Sea Lion Flows Six Miles to Cover an Airline Distance of One

Strong Arms Guide a Passing Boat in Breaches Concurrent Rapids

[illegible]

Only Expert Boatmen Brave the Swift-running Sea Lean

Deep in the Desert, Rainbow Bridge Rears Its Graceful Arch Skyward Like an Aurora Borealis Frozen in Stone

VII

Quiet Water Leads Into the Cool Shadows of Mystery Canyon, Once the Home of a Vanished Tribe

The Desert Grass Sends Up Flowers Like Tall, Feathery Javelins

[illegible]

Pet Animals Take on Place of Dogs for Sheep Protection

[illegible]

Utah's Arches of Stone

By Jack Breed

"BEYOND those mountains," said Harry Goulding, [illegible] as we watched the sunset from the porch of his Monument Valley trading post, "is a natural arch as long as a football field!"

Harry was looking north toward the Blue (Abajo) Mountains in southeastern Utah. Beyond this range we could clearly see, 100 miles from us, the La Sal (or "Salt") Mountains, which served as a towering landmark for Arches National Monument of Utah, to which Harry was referring.

An arch that almost equals a football field in length was worth investigating!

The next morning I climbed into the station wagon and headed up the rough, dusty trail that leads from Monument Valley* over the San Juan River at Mexican Hat, past the Goosenecks turn-off† to the Utah towns of Bluff, Blanding, and finally Monticello, at the very base of the Blues (map, page 175).

From Monticello the snow-capped 13,089-foot peak of Mount Peale in the La Sals, 40 miles ahead, beckoned us to continue along U.S. Highway 160, which boasts a paved surface for most of the journey. We wound through a narrow gorge below the peaks and finally burst forth into a broad valley, paralleled on either side by brilliant red cliffs, that leads to a Mormon town of Moab, Utah.

Center of a Scenic Wonderland

Moab, with a population of about a thousand, is the county seat for Grand County and the center of an extensive sheep- and cattle-grazing area for a little-known sector of eastern Utah. The valley in which the town is located was first settled in 1855. Continuous trouble with the neighboring Piute and Navajo Indians, however, prevented any permanent settlement for nearly 25 years, when in 1879 the town itself was established.

Moab has never grown large. Many of its people are descended from the original settlers of the region.

Most travelers pass right through Moab and remember the place as a verdant farming community sleeping amid a setting of brilliant red cliffs. However, the speeding traveler is really missing some of the most spectacular scenery in the United States.

Behind the ruddy abutments of Moab Valley lies a veritable galaxy of natural wonders—delicate arches, giant natural bridges, and the deep canyons of the Green and Colorado Rivers, climaxed by the startling vistas from Dead Horse and Grand View Points.

Nestled against the slopes of the La Sal Mountains are lovely lake and aspen glades to tempt fisherman and hunter, lonely Castle Valley, and awe-inspiring Fisher Towers, which dwarf modern skyscrapers.

The most readily accessible attraction is the maze of sand-blasted formations included in Arches National Monument, which lies just a few miles north and west of the town.‡

Wagons Lowered by Rope to Valley

With Custodian Russell L. Mahan of the National Park Service as guide, I set out toward the Windows section early one morning to study and photograph its geologic wonders (Plates III, X, XII, XIII, and XVI). We sped northwest on the paved highway up the steep incline of Moab Canyon, following the route of the old Mormon dugway (Plate XIV).

"Over here," said Russell, "you can see where some early settlers lowered their wagons over the rock. They had to dismantle them and let them down piece by piece through these clefts."

Paralleling the road in many places are unusually regular steps cut into the rocks, and on close examination we could still find the marks worn by the old wagon wheels.

Near the top of the dugway, where the highway bursts out of the red-rock canyon into the open prairie, we passed the original jumping-off place, a perpendicular ledge which offered Mormon settlers their first real obstacle in reaching the fertile valley beyond.

A few miles along on the prairie we turned off to the right on an unobtrusive dirt road that leads to the Windows section of the Arches, nine driving miles away.

In the fall of 1936, Harry Goulding of Monument Valley, in his specially equipped car, managed to traverse the rugged sand and rock of the Arches region and thus became the first person to drive a car right into the Arches. Soon afterward a bulldozer followed Harry's tracks and made a passable trail.

Little improvement was done on this rough road to the Windows section until recently. Mahan, aided by members of the Highway Department, has done much to make the way

* See "Flaming Cliffs of Monument Valley," by Lt. Jack Breed, National Geographic Magazine, October, 1935.

† See "Desert River Through Navajo Land," by Alfred M. Bailey, in this issue of the National Geographic Magazine.

‡ See "Utah, Carved by Winds and Waters," by Leo A. Borah, National Geographic Magazine, May, 1936.

an easier drive for the most discriminating motorist.

We followed Goulding's original route twisting and winding over small dunes and tablelands, across "slickrock," and through several washes which are invariably flooded after heavy rains or during spring thaws.

Windows Section Most Easily Accessible

At the end of eight miles we were in the midst of the red rock formations that could be seen from the highway, and began to pass many weirdly eroded towers, spires, balanced rocks, and finally some arches. We parked the car, and after a hike of a few minutes and several hundred yards toward Double Arch (Plate I) we passed between two huge buttresses jutting out on either side of the trail. Strewn on the ground below were the chunked remains of a former complete span.

"That used to be a fine big arch," said Russell, "but it eroded too far and fell through. You'll see arches in all stages of erosion here."

In the Windows section the basic geology of the Arches can be studied. The rock strata stand out in bold relief; it is easy to see where one layer ends and another begins.

The arches are holes blasted mainly by the wind through long sandstone reefs. Throughout the Monument I noted that these thin reefs or fins are sometimes 300 feet or more in height, and often hundreds of yards in length.

The freezing of rain water in cracks and joints in the rock mass, along with subsequent thawing, enlarges the cracks until big chunks become loosened and start to fall out.

After this process has been repeated for several thousands of years, huge caves develop in the reefs and eventually, in many instances, a complete break results. Fine sand, driven by high winds, helps speed the process and smooths out the jagged breaks into finely sculptured contours.

In the Arches these windows have been formed in a 300-foot layer of rock called the Entrada sandstone, which lies on top of a darker red sandstone called the Carmel formation. Below is the better-known Navajo sandstone, common throughout southern Utah and northern Arizona.

Since geologists class these rocks in the Upper Jurassic period, it would mean that the general rock matrix of the Arches is some 40 million years old!

It took us a full morning to hike around the Windows section of the Arches to visit each of the major features. In the afternoon we returned to Mahan's headquarters to prepare for the climb to the Courthouse Towers sector (Plates VI, VIII, XIV, XV).

I could see little sign of a trail to Courthouse Towers. We started climbing up the grass slope and slickrock immediately behind the Monument headquarters, picking the easiest way over or around the huge sandstone boulders. Mahan showed me where some work had been started during C.C.C. days to build a road by means of hairpin switchbacks up the face of the escarpment.

This feat has not yet been completed. Eventually it will make the Courthouse Towers section available to travelers in their cars.

Fifteen minutes of steady climbing brought us to the base of the sheer sandstone cliff that forms the north wall of Moab Canyon.

Beneath us was the black thread of highway U.S. 160, which follows the route of an old Mormon trail.

To the left, three miles away, we could see the break in the south wall of Moab Canyon where the Colorado River starts winding through hundreds of miles of high red walls that will eventually bring it into Lake Mead, Nevada.*

The pattern of deep-green fields and trees around Moab contrasted sharply with the brilliant red walls of Moab Canyon and the "behind the-rocks" escarpment which hems in the town from the south. Farther to the eastward, receding rain clouds atop the 13,000-foot La Sal Mountains formed a backdrop to this breath-taking sight.

We continued along the base of the cliff, working our way back over the rim on to the sandy juniper flat that leads to the junction with Park Avenue Canyon (Plate XV).

At the head of this hidden gorge there is a sudden but easily traversed drop-off into a winding dry wash that runs to the Courthouse Towers section.

Park Avenue of the Arches

Arches' Park Avenue is well name. Indeed, for a mile down to Courthouse Wash, huge, silent, sandstone skyscrapers looked down on us as we made our way toward Great Organ Rock at the far end (Plates VI and VIII).

The monoliths in this section were named by the citizens of Moab who have explored the area, and the visitor can readily recognize such formations as Sausage Rock, the Three Gossips, Sheep Rock, the Tower of Babel, and many others.

Early the next morning we set out to explore the more distant sectors of the Monument and selected as our first objective remote Delicate Arch.

* See "Nevada, Desert Treasure House," by W. Robert Moore, National Geographic Magazine, January, 1946.

We sped northwest on Highway 160, up the old Mormon dugway again and past the turn to the Windows section. Twelve miles beyond, we cut off to the right on an unimproved dirt trail used by sheepherders and cattlemen to reach grazing lands in Salt Valley, which we soon entered.

Twenty-two miles from the highway turnoff, the trail drops to the floor of Salt Valley Wash, and the rest of the drive was tedious and rugged going.

We plowed through sand, bumped down over rock ledges, straddled boulders, and finally were forced to stop on the brink of a three-foot embankment.

We continued on foot for the remaining half-mile of the trail down the wash to a dilapidated log cabin, known as the Turnbow Cabin, which ordinarily marked the terminus of the automobile road.

The house had been tumbling to ruin so long that it virtually melted into the landscape. Years ago sheepherders used it as a camping headquarters, but it has long since passed its usefulness. From here a trail leads across sandy grasslands to the foot of a smooth slickrock ridge where the ascent to Delicate Arch begins.

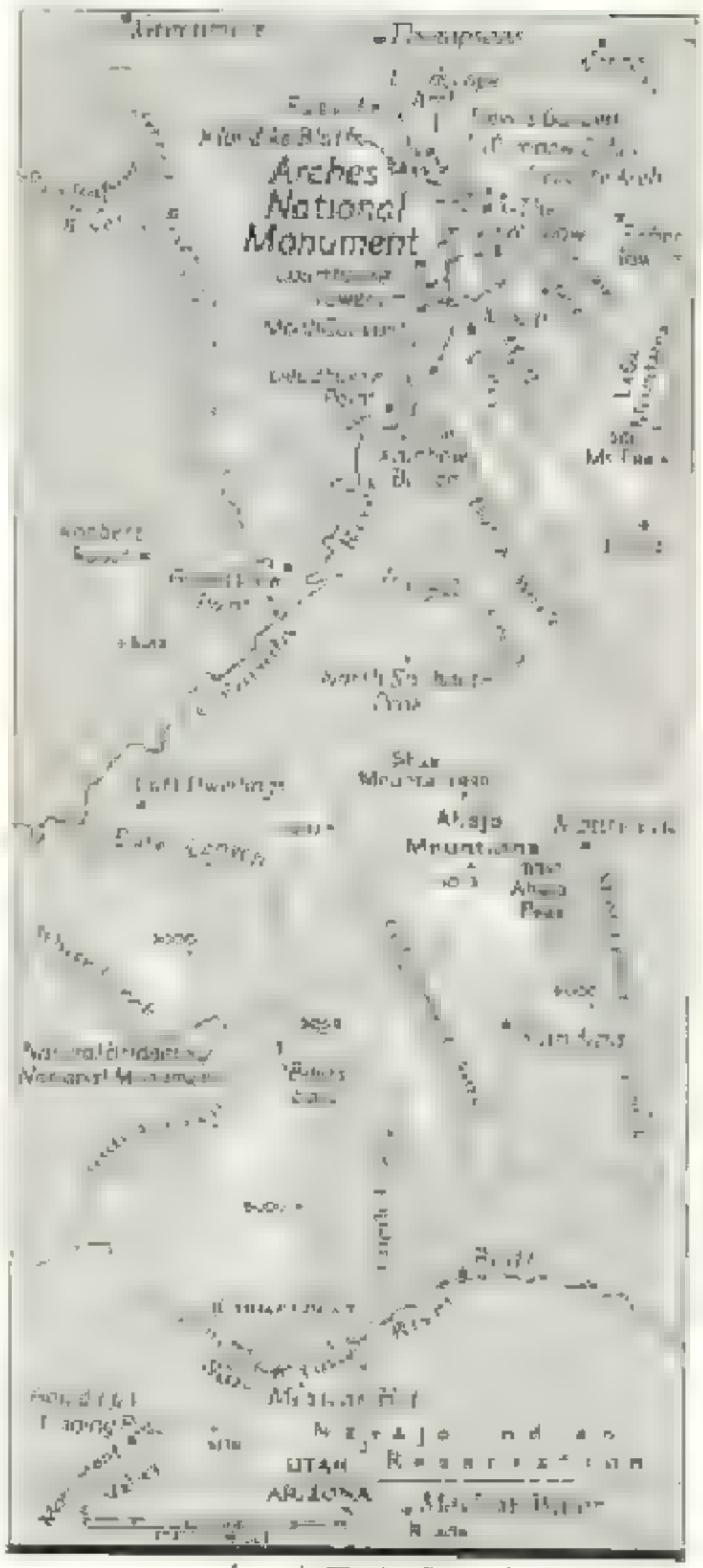
Delicate Arch Is Well Named

Another mile of easy climbing brought us to a marked and weirdly eroded mesa top of gorgeous coloring and commanding views of the surrounding countryside. However, the indescribable beauty and unbelievable formation of Delicate Arch itself made everything else insignificant.

Isolated and alone, the arch seems to sprout from the rim of a natural rock bowl (Plates IV and V). The matrix reef in which it was originally carved has been eroded away, leaving only this finely sculptured semicircle of more resistant sandstone.

"Delicate" is indeed an appropriate name for the arch, for one leg of its 65-foot span is not more than 6 feet thick at its narrowest! Its beauty is further enhanced by the pastel colors which change continuously throughout the day as the sun moves around to the west. On clear days the arch perfectly frames the whole range of the La Sal Mountains, 20 miles southeast, and at any time an inspiring view of Cash Valley may be seen immediately below.

The Devil's Garden section of the Monument (Plates II, VII, and XI) is not far from Delicate Arch. We drove in there the day after our visit to Delicate and cut off to the extreme northwest corner of the Monument before reaching the difficult wash we had had to traverse the day before.



Nature Wrought Weird Sculptures in Utah

From Arches National Monument to Monument Valley on the Arizona line the southeastern part of the State is a wonderland of awesome canyons and strange figures carved in towering rock by mighty rivers and restless winds of the desert.

Leaving the car at the base of a steep, rocky escarpment, we started climbing toward the plateau area that forms the base of Devil's Garden. Our guiding landmark was a massive 125-foot, black-rock pinnacle, the Dark Angel, visible from most sections in this part of the Monument.

On some of the cliff walls along our route we encountered our first visible signs of Indian

peoples believed to have frequented this area. Hundreds of petroglyphs, depicting human figures and animals, are scratched into the blackened walls. Because of the present lack of potsherds or other concrete signs of early Pueblo culture,* some archeologists think these drawings may have been made in comparatively recent times by the Ute Indians, whose range includes the Arches area.

Of the Monument's 84 known arches, 64 are found in the Devil's Garden. We first paused to examine unusual Double-O Arch, a phenomenal feature where one arch has been carved immediately above another (Plate II).

Beyond Double-O the trail enters an unbelievably rugged maze of fins and reefs that seems to form an impenetrable forest of wildly eroded slickrock. The most concentrated group of these fins, known as the Fiery Furnace (Plate XI), is located at the [illegible] of the appropriately titled Devil's Garden.

Longest Known Natural Arch

Mahan led the way over dozens of these fins, each one of which looked just like its predecessor, and at times even he had trouble making certain we were not lost. Our goal was the giant sandstone fin in which ribbonlike Landscape Arch has been carved—the longest known arch of its kind in the world (Plate VII). After an hour of laborious hiking we came upon it suddenly, hidden in its own little canyon draw that frames the lovely desert landscape from which it gets its name.

"This is a big place that few people get to," Mahan told me. Remembering the ruggedness of the terrain, I could understand why. A friend who visited the Monument sometime later told me he had spent a day wandering [illegible] to find Landscape Arch. He never did catch sight of it until nearly sundown when it was too late in the day to approach it.

Admiring Landscape Arch, which arches more than 100 feet above the canyon floor, I could not help wondering if it would fall through in the next windstorm. Its 291-foot span, just nine feet short of the length of a football field, has been cracked down to six feet at one point!

Talking with some of the residents back in Moab, I became aware of the feeling in the town that the arches are certainly not the most unusual features in the region.

Several individuals were anxious to take me by boat down the Colorado River to visit Little Rainbow Bridge or the Colorado's junction with the Green River. Upstream were dated Fisher Towers, knifelike pinnacles of deep ruddy sandstone, isolated in a remote canyon that is reached only by a treacherous drive up a stream bed noted for its quicksand.

However, Moab's residents firmly believe that Dead Horse Point (Plate IX), at the end of a broad mesa top overlooking the Colorado River, commands a canyon vista surpassing that of the Grand Canyon to the south in Arizona.

Accompanied by Mahan and his family, I drove to Dead Horse Point one morning to have a look for myself. The winding dirt road twisted through lovely pink mesa and sandy grassland country for 35 miles to a point only 11 airline miles from the town.

We left the car in a grove of junipers and walked across a rocky neck only a few feet wide with a sheer drop of a thousand feet on either side to reach the main point itself.

My first view from Dead Horse Point convinced me that here indeed is another Grand Canyon! Three thousand feet below us was the Colorado River, meandering through immense goosenecks before it continues in a [illegible] pattern to its junction with the Green River, 40 miles downstream. The maze of brilliant colors is breath-taking.

In one sweeping view was unfolded to us some 5,000 square miles, one of the largest relatively roadless areas in the United States. Southwest of us was another commanding promontory, Grand View Point, which marks the junction of the Green and Colorado Rivers.

On our right were the isolated Henry Mountains, which guard the entrance to Utah's little-known Wayne Wonderland.

To the south we could see the Bears Ears buttes, which pinpoint the location of Natural Bridges National Monument, and directly beyond them Monument Valley and the Navajo country.

Also to the south were the Blue Mountains near Monticello, and to the east the snow-capped La Sal Mountains.

Here in one magnificent vista was one of the largest areas of incompletely explored country remaining in the United States, forbidding, colorful, silent, and inaccessible.

It was easy to realize that Dead Horse Point, Arches National Monument, and the many other attractions of spectacular beauty in this region place the peaceful farming community of Moab, Utah, at the hub of a long neglected scenic wonderland.†

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, by Matthew W. Stirling, "Indian Tribes of Purple Land," November, 1941.

† For additional material on the NATIONAL GEOGRAPHIC MAGAZINE on scenic southern Utah, see "Encircling Navajo Mountain with a Pack Train," by Charles L. Bernheimer, February, 1923; and "Beyond the Clay Hills," by Nell M. Judd, March, 1924.

Mormon Settlers Called Double Ness in the Wahlows Section, "The Dog Hanches"

To Make Doubleset Arch Desert Winds Blew Through a Sandstone Fin Two Symmetrical Openings, One Huge, One Tiny

Beamed by 98-Foot North Window In Turret Arch: As the Cracks Weather, Rock Will Fall Thus Enlarging the Opening

Cowboys and Sheepherders Travels Behind Arch In "Lost Old Mac's Bloomers"

Amid the Courthouse Towers Rises the Great Organ above a Chair of Black-eyed Susans [Plate VIII]

Nearly as Long as a Football Field, Ribbon-like Landscape Arch Is Only Six Feet Thick at Its Thinnest Spot

Like a Stone Knife Blade the Great Organ Thrusts Up Hundreds of Feet to a Gourd-like Wash

Within Sight of the Corrals, Confused Wild Horses Died of Thirst on Dead Horse Point

Tail to Rump, 100-foot-long Stone Elephants Turn a Circus Parade Across the Western Sector

Ivory Tons on the Dead's Garden Daily Penetration by the Harvest Weaver

In the Windows Section of the Monument Nature Has Cut a Pair of Spectacles

South Window, on the Left, Is Separated from Its Mate, "Moose," by a Jutty and "Nose Bridge"

XIV

Where 60 Years Ago Mormons Had to Lower Wagons by Ropes — Paved Highway Leads to Moab

A Milestone Among the Mile-or-Sandstone Skyscrapers Rattles down to Grandeur, Water and the Great Green Cross. Plates VI and VIII

An Overhang Resembling the Entrance Arch in the Wonderland Section — Bluff Trail in Front Opposite

Land of the Pilgrims' Pride

By George W. Long

With Illustrations by Staff Photographer Robert F. Sisson

ACROSS Plymouth Bay a driving nor'easter beat mercilessly at the venerable hotel on Cole's Hill above the famous Rock. I stood inside before a crackling fire and peered out at white-capped waters. To my mind came those pitiful words in Bradford's history describing the arrival, more than 325 years before, of the Pilgrim band in these same waters:

"They had no friends to welcome them, no inns to entertaine or refresh their weather-beaten bodys, no houses or much less townes to repaire to, to seek for succoure. . . Besides, what could they see but a hideous and desolate wilderness, full of wild beasts and wild men?"

Staunch Pilgrim courage built a beachhead of civilization in that wilderness.

Expanding slowly, it became the Old Plymouth Colony, stretching from Cape Cod's tip to Narragansett Bay, from Scituate to Nantucket Sound (map, page 196). Pilgrim traders founded outposts from Maine to the Connecticut Valley, matched wits and wampum with French, Dutch, and Indians.

"A Thoroughfare for Freedom"

Others tilled local soil, took to the sea, or "a thoroughfare for freedom beat across the wilderness." Plymouth, 72 years capital of this Pilgrim republic, did not long hold many firstcomers. Perhaps better land was the chief attraction, but I heard another explanation put forth vigorously by 101-year-old Mr. Theodore Adams, long time Plymouthian.

"The Pilgrims must have been unsociable people," he said. "Bradford and Howland went to Kingston; Standish, Alden, and Brewster moved to Duxbury; Winslow went to Marshfield.

"In the 1640's half of Plymouth moved to Eastham on Cape Cod. John Cooke moved all the way to Fairhaven on Buzzards Bay. I'm descended from 14 *Mayflower* passengers, but I *still* say they were unsociable people."

Those remaining few were laid at rest on Burial Hill. From this quiet, shaded height I looked out across the terraced town to the blue expanse of bay.

Imagination can easily picture the settlement of 320 years ago. And a tiny, compact settlement it was—Leyden, Middle, and North Streets running from harbor to Main Street, which roughly parallels the shore. Summer Street, winding uphill along Town Brook, reached the stout palisade which girdled the town from brook to harbor. A scant collection of hewn-plank and thatch-roofed cottages!

Today modern Plymouth is a bustling, busy market and manufacturing community of about 13,500 people. Some 25 mills turn out a dozen varied products, including rope, fine worsted goods, zinc plates for photoengraving, curtains, and tacks.

A popular resort, Plymouth doubles its population in summer. Modern schools, yacht club, libraries, hotels, and movie theaters fill in a complete roster of contemporary living. Shoppers throng the miscellaneous array of modern stores along Main Street, bottleneck on the main road from Boston to Cape Cod. Summer week-end traffic crawls through town at almost bumper-to-bumper intervals.

Plymouth's early Pilgrim stock has been overlaid with successive migrations of Irish, French, Portuguese, and Italians. New England's first permanent settlement has become a miniature American melting pot.

My thoughts of past and present were interrupted by shouting schoolchildren short-cutting across the Hill. An old man carrying a basket of flowers trudged slowly after them.

"Near 80 years old I am," he told me, "but I come down here from Boston every so often. Lots of my people buried here. Gotta take care of 'em, I do."

On this very hill Pilgrims built "a fort of good timbers, both strong and comely," and mounted brazen cannon to overawe the "salvages." In the fort's lower room voices were raised in freedom of worship. Assembling on Leyden Street "at beat of drum," Pilgrims marched together in family groups uphill to enjoy the privilege for which they had dared so much.

Old "Pilgrim Progress" Re-enacted

A *Mayflower* descendant once drove her young daughter across the continent to show her historic Plymouth. Standing on Burial Hill, the mother closed her eyes.

"I can see them now," she murmured, "on their way to worship on this very hill."

Drumbeats interrupted her pleasant reverie. Her startled eyes beheld a strange procession of men, women, and children dressed in the white caps and kerchiefs, the steeple-crowned hats of the Pilgrim congregation.

Since 1921 this "Pilgrim Progress" has

Relics in Plymouth's Pilgrim Hall Take Visitors Back to the Colony's Birth

Built by the Pilgrim Society in 1824, the museum exhibits personal effects of Pilgrims and [illegible] paintings by Henry Sargent's "Landing of the Pilgrims." Beneath it is the wicker cradle of Peregrine White, New England's first born white child. Ships is a scale model of a typical English merchant vessel of the [illegible] class, and a miniature of the *Mayflower*. Beneath the table is a miniature of the Massasoit statue on Cole's Hill (page 19)

[illegible] beat the names of firstcomers. Women who were carried as babies in the first processions now carry their own babies (page 195).

[illegible] Rock. To most of them it somehow seems too small. [illegible] the crowds for the donations dropped into his tall black hat.

[illegible] has gathered no moss in its eventful life. In 1774 swarming patriots with 20-ox teams broke it and dragged its top third to Town Square. Placed beneath the Liberty Pole, it helped raise the patriot spirit.

[illegible] front of Pilgrim Hall. [illegible] people

[illegible] canopy built over it. [illegible] centenary the harbor by the Rock was [illegible] of docks and wharves, a small park created, and [illegible] built to make the wanderer come to rest (Plate VII).

[illegible] rate the Pilgrims and restore [illegible]. But to some people this is only [illegible]. Mr. [illegible] colonial towns or a bigger job than [illegible] Williamsburg, Virginia, restoration of an entire section of old Plymouth.

I descended with him to the cellar of [illegible] sea-gray house on Leyden Street. There I [illegible] of John Howland's [illegible] Now, [illegible] tools they were for the most part

Pilgrims Assembled at Beat of Drum and, Protected by Muskets, Marched to Worship

Their first church was a [illegible] Totally on [illegible] the names of Mayflower passengers. A description [illegible] the Pasts of the [illegible]

[illegible] some aspect of Pilgrim life

Wrinkled Records of Early History

Long antedating Plymouth's [illegible] [illegible] Lines and [illegible] Street with the plots allotted the first settlers. By another it was estab[illegible] [illegible] and should be tried in the verdict [illegible]

Later that day I visited the [illegible] Courthouse and saw the city [illegible] in action. In the [illegible] mahogany-panelled courtroom where Daniel Webster once tried cases the fate of a returned veteran hung in the verdict of twelve [illegible]

But most early record revealed less [illegible] methods of [illegible] "[illegible] kind of thatche." [illegible] Edward Winslow both sold unto Capt. [illegible] shares in the red cow in consideration of [illegible] pounds ten shillings to be paid in corne.

Mr. Edward C. Holmes, Registrar of Deeds, brought in the patent granted the [illegible] Together we read the words on the wrinkled parchment and examined the [illegible] and its wonder [illegible]

Plymouth's birthplace of the New England town meeting, its board of selectmen is responsible directly to the voice of democracy [illegible] in the March meeting of citizens.

Town government has varied little in three centuries. Various offices still remain from the old days. There are field [illegible]

Drawn by H. E. Fosbroke

From 1620 to 1692 Plymouth Colony Was a Separate, Independent Pilgrim Republic

Its territory covered most of present southeastern Massachusetts (inset, at left). The young republic established outposts in Maine and the Connecticut Valley, traded with Dutch, French and Indians. Its envoys journeyed to Boston, Manhattan, and England. Colony leaders sent representatives to a General Court (Assembly) in Plymouth, the capital. Dotted line on inset map marks the Massachusetts Bay Colony-Plymouth Colony boundary before Pilgrim land became part of Massachusetts.

Fence Viewers, a Surveyor of Wood and Bark, Pound Keeper, and Town Sexton. According to old Pilgrim custom, the Sexton rings the Paul Revere bell in the steeple of Pilgrim Church at certain hours.

"For a while we stopped ringing the bell," the Chairman of Selectmen said, "but so many people missed it we started again."

The town is run from unpretentious, gray clapboarded, nearly 200-year-old Town House, the oldest town government building still in use in New England (page 159).

Behind Town House I claimed the open door of a small building marked "Old Chapel."

"Who are you and what do you want?" challenged a crisp voice.

The Art of Letter Writing Survives

Entering, I met Miss Alice Barnes. With eyes sparkling, words popping, she told me of Plymouth and its people. In 1941 Miss Barnes, now 78, created in this old building an information center which showed interesting exhibits of the town. That first summer she briefed more than 8,000 signed visitors on where-to-go and what to-see in Plymouth.

On Cole's Hill Overlooking Plymouth Bay Stands Massasoit, Sachem of the Wampanoags

[illegible] from Cape Cod to Narragansett Bay, he proved a staunch friend to struggling Plymouth [illegible] leaders. [illegible] years [illegible] warpath in 1675, with a short but devastating [illegible]

"They Brought Up Their Families in Strong Virtue and a Living Faith in God . . . ."

[illegible]

Plymouth, Site of the Town Meeting, Dinner in Its 185-year-old Town House

[illegible] 1749. The site [illegible] the Stamp Act, wrote [illegible] town House to its delegate [illegible] markets fill [illegible] basement in [illegible] a auction hole [illegible]

[illegible] 142 [illegible] to Plymouth [illegible] Since [illegible] 1830 around the globe have received her individually typed letters. In [illegible] have come to her from the earth's corners. Snapshots from Egypt and a postcard from India arrived that afternoon.

Some day I'm going to arrange Nantucket Gardenette pictures on a big old Conway mantel. These boys ought to meet up with places they've seen. So much to do. Will I ever have time for it all?

[illegible] Plymouth Gardenette mirrors three centuries [illegible] and living seventeenth and eighteenth century life [illegible] survive from those days. I visited a green gambrel-roofed or saltbox [illegible] 300 years old and [illegible] 100 years younger.

Plymouth itself [illegible] from [illegible] Howland's [illegible] 1667, sheltered his father, John, when the latter's Rocky Nook home burned. It may be [illegible]

On [illegible] Street [illegible] Spooner House, [illegible] years ago. In it lives Miss Katherine L. Miles, descendant of the famous [illegible]

An accomplished craftsman, she has taught more than 300 Plymouth [illegible] the skill of the potter's thumb [illegible].

The "Oldest House in Plymouth"

Together we examined this "oldest house in Plymouth." We admired the huge, [illegible] centered fireplace, wide boards [illegible] oak beams, and hand-carved paneling. The front door, one board 31 inches wide, was

Cyclists Push Their Bikes up a Historic Slope—First Main Street of Plymouth and New England

[illegible]

Cranberry Bogs of Massachusetts' Old Plymouth Colony Produce Two-Thirds of the Nation's Supply for Juices

Dartmouth Honors the Memory of Its Many Sons Who Have Died at Sea in Their Country's Service

"For Which Mercie They Also Sett Apart a Day of Thanksgiving"

[illegible] the New England picture of Thanksgiving which President Lincoln made a national [illegible] in 1863. He selected the [illegible] Thursday of November. Pilgrims celebrated in October. [illegible]

buttressed by another beam." [illegible] house," I was told.

The Kendall Holmes House (1653) is a [illegible], long-remembered stopping place for visitors. Said to be the first home of William Harlow, this quaint cottage has seen "[illegible]" 294 years of it!

[illegible] successfully as the William Harlow house, built in 1677 from the timbers of the old fort." Pilgrim school children [illegible] show Pilgrim customs by planting corn and flax in the yard "when the oak leaves are the size of a mouse's ear." Corn hills are fertilized by alewives from Town Brook, three to the hill.

Harlow House reflects the thrift and ingenious methods of supplying a colonial household with food, light, and clothing. [illegible] was considerable in this house, for William Harlow had [illegible] children.

"Pilgrim Breakfasts" on Sunday Mornings

Today, those who exhibit the house dress in Pilgrim garb. They spin flax and wool, weave [illegible] in old looms, dye them with plants from field and wood. Bayberry candles are dipped. Maize grown in the garden is pounded and cooked in the old-time Indian way.

Formerly "Pilgrim breakfasts" were held on summer Sunday mornings, open to the public. Maize [illegible] cakes, [illegible], brown bread [illegible] cooked over the open hearth in the [illegible] utensils of William Harlow's day.

By the middle 1700's many Old Colony families lived in comfortable houses. None fared better than the men made [illegible] by [illegible]. They were [illegible] of substance.

About 1754 Edward Winslow, grandson of the Pilgrim governor, built one of the finest 18th-century mansions. Importing English [illegible], he built a house which, even today, nearly 200 years later, retains an air of distinction [illegible] of the [illegible] and [illegible] of the old regime.

Here Dr. Charles T. Jackson conducted experiments in etherization on himself. In the spacious living room [illegible] Lydia, was married to Ralph Waldo Emerson. Recently this stately [illegible] mansion became National Headquarters of the General Society of Mayflower Descendants.

[illegible] prosperity is also reflected in the [illegible] Antiquarian House and its terraced

site overlooking Plymouth Bay. Built in 1809, its main section follows the octagonal style employed by Thomas Jefferson. It is completely appointed in early Federal style, even to books, papers, clipper-imported china, clothes, and children's toys. In every room are souvenirs of long sea voyages to strange places.

On Main Street I often passed a solid-looking house with wide, comfortable porch. On the lawn a bronze tablet announced: "Old Colony Club, Founded 1769." Later, as a guest, I partook of the Club's hospitality, played numerous games of ping-pong in its modern rumpus room.

"We're the oldest social club in America," I was told. "Founded by some young Plymouth men, Harvard graduates mostly, to run the town's social life."

The Club was the originator of Forefathers' Day, anniversary of the Pilgrims' arrival. Through a mix-up caused by the calendar change of nearly 200 years ago, the Club staged its [illegible] October 22; the town, December 21.

Both celebrate with steaming bowls of Plymouth succotash—[illegible] which includes, besides the usual corn and beans, corned beef, salt pork, chicken, turnips, and potatoes. Many an old family has its own handed-down recipe, which it keeps a secret and knows is the best in town.

Oldest Industry Still Going Strong

Kingpin of modern Plymouth industry is Plymouth Cordage Company. Founded in 1824 as Bourne Spooner, a *Mayflower* descendant, "Cordage" is the Nation's oldest and largest manufacturer of rope. It supports about a quarter of the town's population.

Plymouth's weekly war production of binder twine was enough to encircle the world three times. Its annual production of rope—roughly three feet for every American—found more than 430 separate uses with our armed forces and was at times flown directly to invasion beachheads.

In Spooner's original rope walk, fourth- and fifth-generation employees apply 123 years of accumulated "know how" in making [illegible] under rope. But most rope is made on near-human machines, which comb and oil raw fibers, twist them into yarn, the yarn into strands, the strands into rope.

In the Cordage laboratory I saw rope that Spooner never dreamed of—chemical-resistant Saran, heat-resistant Fiberglas, durable polyethylene, and that "glamour girl of rope" nylon. I watched the hydraulic testing machine exert a fraction of its 60,000-ton pull

"It's Miles Above the Sea"

So Duxbury residents claim the Miles Standish monument as the world's tallest! It stands on land the county acquired after moving from Plymouth in the 1600's. Seen by [illegible] his son's house built in 1653 partly from the charred [illegible] of the house. Also, courageous [illegible] Standish was Plymouth Colony's [illegible] "witness" for 36 years.

[illegible]-one Years of Experience Guide His Hardwood Fid

[illegible]

window [illegible] [illegible] Now—throw the rope out of the window, put [illegible] between the [illegible], and come down.

Cranberries, long associated with Thanksgiving, have become an industry which [illegible] a yearly average of [illegible] to Old Colony growers, [illegible] as well as the [illegible] [illegible] thirds of the U. S. crop.[*]

[illegible] the [illegible] of cranberries are [illegible] [illegible] [illegible] Chemists have begun to find new ways [illegible] [illegible] [illegible]

Some [illegible] of the Old Colony [illegible] spot on Mt. [illegible] in South Carver. [illegible] [illegible] [illegible] Edaville. The little "town" has a paved main street of two lanes separated by a [illegible] and flower bed.

A [illegible] chief attraction for visitors [illegible] whistling two-foot-gauge railroad. The [illegible] is [illegible] today part useful [illegible] adjunct. [illegible] it does working duties and hauls sand. [illegible] No. 3, [illegible] [illegible] piece parlor car.

The "Rangeley Lakes" of 18[illegible] vintage was once the pride of the Rangeley Express, which used to make three trips daily between Farmington and Rangeley, Maine.

[illegible] compartment, [illegible] [illegible] and water [illegible] [illegible] windows, [illegible]

[illegible] with the [illegible] [illegible] line.

[illegible] something more than a living. [illegible] 33 [illegible] More than [illegible] [illegible] 24th [illegible] a week.

[illegible] a knotted rope spliced [illegible] a staple in the

---

[*] See "[illegible]" [illegible] National Geographic Magazine, June 19[illegible].

[illegible] mahogany woods, crystal [illegible] individual swivel seats. In her heyday there was a white-coated colored porter, too.

"Yes, sir," said E. D. A., as we sat in style in the observation section, "we kept right on running through the big railroad strike.

"That fellow in the club," he went on, "is a young actor-naturalist staggered from New Jersey. He drove most of last night just so he could run this engine today. He'll have to [illegible] most of tomorrow to get back to work tomorrow. Most hobbyists are crazy, but I guess we railroaders are crazier than we are."

After rolling the rails we took to the water to explore seldom-visited Clark's Island in Plymouth Bay. Named for the *Mayflower's* mate, this green, whale-shaped [illegible] lies just in the [illegible] Beach, of which the Gurnet and Saquish form the heel and toe. There on the night of December 19, 1620, the Pilgrim exploring party, [illegible] and exhausted by a [illegible], found refuge. [illegible] Plymouth shores.

Our own boat followed the turbulent course of the Pilgrims', "good, under the lee of a small land." Guided by a member of the Watson family, who have owned all or most of the island since 1690, we explored the nearly cut paths which criss-cross it. We quenched our thirst at the [illegible]-shaded well and climbed Pulpit Rock.

AP Dow Photo

With a Roar, an 81-foot Gambler Engulfs Marine Light

For 87 years this sturdy lighthouse has defied the fury of the sea. It [illegible] Harbor. In storms, spray clouds reach the lantern, coat the glass with ice in winter. Located near the old Plymouth County-Massachusetts [illegible] it marks a coast famous as a graveyard of ships.

To "Garnet's Nose" by Jeep

Legend tells that in the rock's shelter the Pilgrims worshipped God. They liked the island well enough to consider making the first settlement there. But all we found to remind us of them were worn-out ruts in the rock face: "On the Sabbath Day, Wee Rester."

Another sparkling day, we pounced and [illegible] tered in a Crest Gem [illegible] to Garnet Point, called "Garnet's nose" by the early colonists. On this wind-swept promontory at the outer harbor's mouth are the embankments of old Fort Andrew, built in 177[illegible], which fought off H.M.S. *Nimrod* in 1812. [illegible] first twin light in America [illegible] brother but is still an important beacon for shipping using the Cape Cod Canal.

It was there I met old Jim Watson. "Man and boy," he told me as he weeded [illegible] "I been comin' to the Garnet for [illegible] years. [illegible] Cool and quiet and [illegible] place."

[illegible] he took a [illegible]

From the Land of the Pilgrims WRUL's Powerful Voice Speaks to Four Continents

[illegible] Founded in [illegible] by Walter S. [illegible]

and [illegible] little [illegible] of the water's edge. We [illegible] a friendly game of [illegible] together [illegible]

[illegible] very table where ol' Daniel Webster used to [illegible]. He was [illegible]. And the Gurnet was a favorite place [illegible]. [illegible]

The Gurnet's [illegible] Norsemen [illegible]. The [illegible] French explorer, Champlain, [illegible] Captain John Smith [illegible]

[illegible] Plymouth [illegible]

Gurnet's first lighthouse, built in 1768, housed America's first woman keeper, Hannah Thomas, wife of a Revolutionary general.

[illegible] the Gurnet. I watched a Gloucester [illegible] George Simpson [illegible]

[illegible] saved the Pilgrim colony [illegible]

Three [illegible]

sold the right to catch these alewives that swim up Town Brook each spring. Sealed bids are made by interested parties, and the contract is awarded the highest bidder.

A Runway for Alewives

"Not much competition lately," Sampson told me. "Nobody but me has the equipment, I guess. Contract says you have to get 15,000 of the fish up to Billington Sea. I rush 'em up by tank truck. The State's putting in a runway so's the fish can get up themselves."

Shades of the Pilgrim Fathers—a runway for the alewives!

"Before you leave Plymouth," I was told, "see Guy Cooper at Jabez Corner. He runs a real old-fashioned general store. Always prided himself on having anything anyone asked for; that is, before the war he did."

They told me of the summer resident who thought to stump Guy by asking for a pulp t Without a word, the old storekeeper led him to the barn, showed him one of staunchest oak. "Got her from the church down the road they took down some time ago," he explained "Thought some darn fool'd ask for it."

The store, 150 years old, with 14 additions to its original building, sprawled back from the Cape road in accumulated abandon. Inside, a confusion of merchandise was heaped on counters and shelves. Many of the articles I hadn't seen in years.

"Know where everything is?" said Guy "Sure I do. Ought to. I've tended store here for more than 60 years. Want to see around?"

We did "see around," talking of storekeeping, its trials and tribulations. Occasionally the tinkling front door bell sounded, and Guy would hurry off to get a quart of milk or penny's worth of candy.

"Now here's where the milkeggers gather, winter nights," he said when we reached the back room. There they were—a dozen kegs and a fat, pot-bellied stove. "Most people think things a run from Washington. Ain't, though. Right here's where everything's settled. These fellers always leave in a hurry, too. Anyone leavin' before the rest naturally loses his argument."

Business picked up, so I sat on a sack of grain and played with four frisky kittens. Plenty of good-natured fun crossed the counter with money and goods.

"Ever try these?" Guy asked a summer customer, pointing to a dozen fluffy buns wrapped in cellophane.

"Are they *good?*" she countered, rising to the occasion.

"Don't know. Never et any," came the brisk reply.

Driving southeast toward Cape Cod, we were intrigued by a sign which stated "Priscilla Beach Theater America's Largest Summer Theater Colony." On a side road we found it a huge red barn surrounded by numerous trim white farmhouse buildings. Young people were everywhere.

For ten summers Priscilla Beach has coached some 1,800 aspirants to stage and screen. From every State in the Union they have come, some 150 boys and girls a season, to study and act together.

We watched four rehearsals going on simultaneously, on the stage and under the trees. Later we attended creditable performances of *Pride and Prejudice* and *First Lady*.

Plymouth's northern next-door neighbor is Kingston, leisurely tree-shaded town of 3,000 [illegible] became "home" to ten *Mayflower* passengers, including their able governor.

Bradford an Erudite Governor

William Bradford, the colony's erudite governor for 31 of its crucial first 37 years, was one of the great figures of 17th-century America. His journal, *History of Plymouth Plantation*, ranks among the Nation's most valued historical works.

Still standing is the home of Maj. John Bradford, the governor's grandson, which for a time housed this priceless manuscript (Plate VIII). Loaned to the Reverend Thomas Prince in 1728, it eventually became part of a library in Old South Church, Boston.

The book evacuated Boston with the British in 1776, dropped mysteriously out of sight. Discovered in the library of the Bishop of London in 1855, it was finally returned to Massachusetts after an absence of 121 years.

Flowing placidly past Bradford House is historic Jones River, named for the *Mayflower's* captain. In reality a meandering tidal creek, this "river's" past matches its ambitious name. Between 1776 and 1876 some 270 Kingston-owned vessels up to 600 tons were launched, mostly sideways, from its busy shipyards. Ox teams dragged them on flood tides to the bay.

Jones River launched one of the earliest American privateers, the brig *Independence*, in 1776. Kingston men and Kingston ships sailed the Seven Seas for a century thereafter. The *Pilgrim*, Kingston-built in 1829, was made famous by its young crew member, Richard Henry Dana, in *Two Years Before the Mast*.

On a wooded knoll at the end of a lane I found the home of Wrestling Brewster, grand

son of Elder William Brewster. I talked with Miss Charlotte Cutts, Brewster descendant.

"Built in 1690," she told me. "Reconstructed by Thomas Brewster during the Revolution. He was quite a fellow, too. Because his wheat saved the town from famine one year he was never run out for being a Tory. His name was always on the proscription list, but just before it was to be read off somebody'd yell 'Beat the drums!' And beat 'em they did, so no one could hear his name. Kept a hogshead of British tea in his attic all through the Revolution, too."

"Myles Above the Sea"

Dominating the town of Duxbury stands the granite monument to Myles Standish, topped by a 14-foot statue of the bouldry captain (page 203). Old-timers catch newcomers to Duxbury by telling them it is the world's highest monument. "Sure," they say, "it's Myles above the sea."

We climbed countless circular stairs, lugged cameras through narrow trapdoors, finally sat at the statue's base 288 feet above the bay. The day was crystal-clear. There before us to the south and east spread a breath-taking panorama—the bright blue of Plymouth, Kingston, and Duxbury Bays, the green and white of Gurnet Point, Saquish Head, Clark's Island, and the tall pine-clad headland of Manomet. Clearly outlined in the distance we saw the whole 65-mile sweep of Cape Cod's upraised arm. Twenty-five miles east the Pilgrim Monument at Provincetown was silhouetted against the azure sky.

Founded by early Pilgrim summer residents, Duxbury is now a favorite summer retreat for Yankee families who love to sail. At season's height some 150 craft crowd the inner bay. Children start to sail at seven. Center of social life is the 52-year-old Duxbury Yacht Club (Plate VI).

A century ago Duxbury was a major American port, known round the world. Fourteen shipyards launched vessels by the score. Duxbury captains matched skill against the sea, crowded canvas till masts trembled and straining rigging sang.

Still remembered is the name of fabulous Ezra "King Caesar" Weston, who founded in 1764 a million-dollar shipbuilding business family-owned through four generations. Westons ruled a wide commercial empire with firm but benevolent hand. Weston enterprise built, outfitted, rigged ships; fished on the Grand Banks; traded in every sea and ocean. Lloyd's of London listed over 100 Weston-owned vessels in 1817, noted Ezra Weston II as "largest shipowner in America."

"King Caesar's" stately mansion still reigns supreme over other "square-rigged" houses built by sea captains along fashionable Powder Point. The 153-year-old Weston Store, in South Duxbury, with original age-mellowed shelves and counter, has relics of the South Sea trade.

Outstanding among wide-ranging Duxbury captains was Amasa Delano. Between 1786 and 1822 this courageous captain thrice encircled the globe, explored widely among Pacific isles, traded extensively with China, India, the East and West Indies, and Europe.*

Roosevelt Ancestors Settled in Duxbury

First Delano in America was Philippe de La Noye, who arrived at Plymouth in the *Fortune* in 1621 and later removed to Duxbury. He was also first among the maternal ancestors of the late President Franklin Delano Roosevelt.

A trio of typical square-rigged shipmasters' houses are those built by Col. Gamaliel Bradford for his sons, Gamaliel, Gershom, and Daniel, about 1809. Entering Gamaliel's, I was astonished to see a colorful oil painting of the lethal chrysanthemum created by the atomic bomb burst over Nagasaki.

"That was painted by my husband, Capt. Charles Bittinger," said my hostess. "It would be beautiful—except for its implications."

Captain Bittinger was official artist of the National Geographic Society-U. S. Navy Eclipse Expedition which in 1937 observed the sun's total eclipse on Canton Island. His unusual painting of the eclipse now hangs in Explorers' Hall at National Geographic Society headquarters.

When I was visiting Captain Bittinger's home in Duxbury, he was in Bikini to paint the experimental explosions about to take place there.†

Duxbury ranks second to Plymouth in early Pilgrim associations. There can be found the site of Myles Standish's home and the house built by Alexander Standish from the charred timbers of his father's home. The secluded, pine-shaded Old Burying Ground is the resting place of that eternal triangle—the Captain, Priscilla, and John Alden. The John Alden House, built by son Jonathan in 1653, saw the death of John and probably Priscilla. Now a museum, it has been in the Alden family 294 years.

We traveled the "Old Coast Road" (3A)

* See "American Pathfinders in the Pacific," by William [illegible] Nichols, in the NATIONAL GEOGRAPHIC MAGAZINE, May, 1940.

† See the NATIONAL GEOGRAPHIC MAGAZINE, [illegible] "Old Glory on Canton Island," June 1938, and "Operation Crossroads," April, 1947.

No Longer Potentially Caused by Prey, It is Closer Skin than This Plumage Has

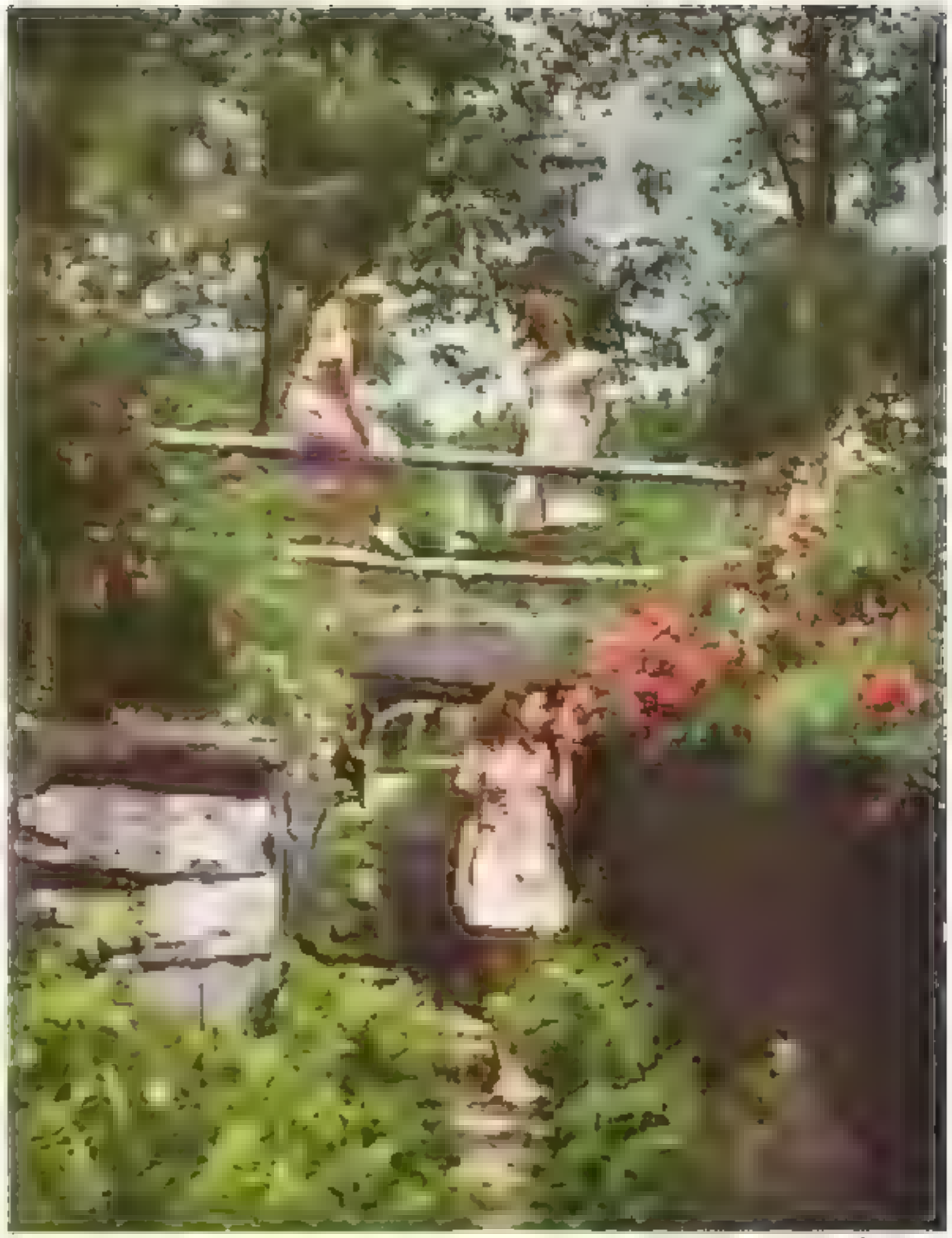
In Warm Summer Days Children Swim and Sail at Scituate Yacht Club Pier, Based on Town's Scituate Historic Harbor

When the Photographer Wanted Deft Fingers Nodded a Jar

"... And English Roses Bring Very Pleasant"

Tom Sawyer and Huck Finn, two Vacationing Kids on a Homemade Raft Read a Newspaper Picked

Heroic Statue Honors the Courage of Pilgrim Women



Roses Bloom Where Anvils Clanged at Mighty Chains

Dixon's 'Pilgrims' Crowd Canvas on the Heavy Stretch to Win the Season's First Race

Partial Plymouth Rock, Is the "Steepest Place of a Nation"

[illegible]

A Well Marks "The Site Made Famous by a Song"

[illegible]

From This Historic Site Boyd's Peerless Mississippi Began Its 100-year Journey

Plymouth Bluffs Like the Waves and Meteors of the Lake Superior, Are Valued Landmarks

north to Marshfield and to Scituate, Old Colony border town. This historic snakelike road follows the line of least resistance laid out by moccasined feet centuries ago. It was proclaimed a "highway" as early as 1639 and was a vital link between Boston and Plymouth when each was capital of a sovereign state.

Two names, Winslow and Webster, remain forever linked with that of Marshfield. Edward Winslow, thrice Old Colony governor and its trusted diplomat, became the town's first citizen in 1636. Diplomatic missions, to England and in the service of Oliver Cromwell, prevented his seeing much of his fine estate, Careswell. He died of fever in the West Indies, 1655, and was buried beneath Caribbean waves amid the thunder of a 42-gun salute.

Edward's son, Josiah, the colony's first native-born governor, lived at Careswell until it burned. His son, Isaac, built an aristocratic mansion in 1699 which still remains in all its original beauty. Part was remodeled by Gen. John Winslow upon his return from the onerous job of expelling the Acadians from Grand Pré.

In Pilgrim Hall, Plymouth's museum of intimate Pilgrim relics, are grouped the interesting portraits of the early Winslows. That of Edward Winslow is the only known likeness of a *Mayflower* passenger.

Webster Fell in Love with Marshfield

Daniel Webster, driving from Sandwich to Boston in 1834, fell in love with Marshfield in general and the estate of Capt. John Thomas in particular. Then every year for eight years he stopped to ask the same question. In 1837 perseverance triumphed, and Webster bought the farm.

The famous Massachusetts Senator wrote to his son: "Giants grow strong again by touching the earth; the same effect is produced in me by touching the salt seashore."

Webster became "Ol' Dan'l," friend and neighbor to all, the squire of Marshfield. He fished Old Colony streams, hunted in its woods, [illegible] Amid Washington's pressing business he sent numerous and detailed letters of instruction to his caretaker.

In the old Winslow Burying Ground we found his simple grave with its Biblical epitaph: "Lord, I believe; help thou my unbelief." On his estate we found his separate law study, lone survival of the fire which consumed his house in 1878. We stood beneath the elms he planted to commemorate his children's births and felt the spirit of a great man.

Marshfield, under the aristocratic Winslow influence, was a Tory stronghold 175 years ago. General Gage sent a regiment of red coats to protect the town, quartered them on what was later the Webster place. We saw the giant oak to which, we were told, British soldiers were tied to receive their disciplinary lashes.

"But the sentiments of Marshfield are not those of the Old Colony," wrote a Duxbury patriot. Marshfield narrowly missed undying fame as first battleground of the Revolution. Militia from Kingston and Duxbury, sent to expel the redcoats, waited to act until word arrived of Lexington and Concord.

In 1647 one Walter Hatch was granted part of a two-mile section, then in Scituate but now in Marshfield, and built a house thereon. In his will, dated 1681, he gave house and land to his son and his heirs "not to be mortgaged or sold out of the family from generation to generation to world's end."

The house has passed from father to son through eight generations. I visited this pleasant home and talked with its present owner, author-teacher Richard Warren Hatch. Just released after three years with the Navy in the Pacific, Mr. Hatch was taking life easy.

"We don't say much about it," he told me. "Three centuries in the same place—just means we love it, that's all."

Between Marshfield and Scituate the North River meanders placidly through ever-widening meadows to the sea. Like the Jones River, this limpid tidal stream belies its proud, historic past.

"River of a Thousand Ships"

From 1678 to 1871 more than 1,000 ships were built in some 20 shipyards along its banks. One, the brig *Beaver*, figured in Boston's famous Teaparty. Another, the *Columbia*, 212 tons burthen, first carried the American flag around the world, opened the Northwest fur trade with China, and gave the Columbia River its name.

North River ships first carried Old Glory to British waters after the Revolution. In 1825 the *Suwana*, North River-built and owned by Ezra Weston of Duxbury, was first United States ship on the Black Sea.

Framed of native white oak, North River ships were famous for their strength and the honesty of their builders. These men built for the Nantucket, New Bedford, and Edgartown whaling fleets. In the 1830's they designed a vessel which captured and long held the Mediterranean fruit trade.

North River history is a tribute to Yankee grit and ingenuity. The river's shallowness; the narrow, winding channel; and the treach-

At "The Trading Post" It's Buy, Sell, or Barter

In Hanover, near Plymouth, an enterprising Yankee turned a [illegible] into a [illegible] spinning wheel are his [illegible] the town's [illegible] to [illegible] to [illegible]

[illegible] mouth, and considerably shortened the [illegible]

Soon after their [illegible] Pilgrims discovered "Bog [illegible] deposits of [illegible] particles in marsh [illegible] and slow-moving [illegible] Trade from foundries and "bloomeries" sprang up, and during most of our colonial history eastern Massachusetts was the chief seat of the iron industry on the continent.

We [illegible] carking [illegible] bridges, and [illegible]. Hardware and [illegible] locally built ships were hammered out in nearby towns. The original anchors that held "Old Ironsides," pride of our [illegible] Navy fleet, were [illegible] in Hanover, near Marshfield.

Scituate and Marshfield [illegible] more varied views than nearer-Cape towns. [illegible] hills are [illegible] nent, rocks and stony [illegible] more numerous, and the [illegible] meadows lie like lush green [illegible] the rounded [illegible]. Great foaming breakers dash across [illegible] ledges against the rocky [illegible].

Off this rockbound [illegible] defiantly stands "the most dangerous beacon in America," [illegible] Lighthouse. It replaced historic Cedar Point light, still standing at the entrance to Scituate's [illegible] harbor.

"The American Army of Two"

Simeon Bates first lighted Cedar Point in 1811. Legend tells how his young daughters, Rebecca and Abigail, saved the town in 1814. A raiding party from H. M. S. *La Hogue* was approaching the harbor. Grandma's fife and drum, the only [illegible] at "Yankee Doodle" [illegible] the [illegible]. Initial surprise gone, *La Hogue* signaled return of the party, fired a vengeful shot at the light and disappeared over the horizon.

Scituate was settled about 1630 by "[illegible]

[illegible] grass, sand-barred mouth [illegible] the meeting of [illegible] and salt water [illegible].

Sometimes 14 tides were [illegible] to accomplish it. New vessels drifted down on the tide, were hauled by heaving up to the anchor [illegible] ahead by pilot boat. The crew on [illegible] pulled on long ropes. The pilot [illegible] the [illegible] and hauled out, "Haul 'er over to Marshfield," or "Haul 'er over to Scituate."

Getting over the sand bar was a real problem. But in 1898 [illegible] Fort North River became too small for more modern [illegible]; a roaring gale cut a wider, deeper [illegible] for the river. [illegible]

of Kent" who arrived via Plymouth. Timothy Hatherly, prominent first citizen, created what may well have been the first American land boom by actively seeking settlers. More liberal than most early New England towns, Scituate allowed even Quakers within its bounds.

Mordecai Lincoln, ancestor of the sixteenth President, established an ingenious triple mill in the town. His son of the same name moved on to help found the Pennsylvania iron industry.

Justice William Cushing of the first U. S. Supreme Court was a Scituate man. In the absence of John Jay, Cushing was unofficial Chief Justice and administered the oath of office to President Washington in 1793.

Samuel Woodworth, returning home on a hot summer afternoon in 1817, took a drink of New York City pump water. Its lack of refreshment set him to reminiscing about the cool, clear well water of his youth in Scituate.

"Write a poem about it," urged his wife. And write a poem he did, "The Old Oaken Bucket."

We found the well, although the poet's house has been replaced by one only 100 years old (Plate VII). But near by are "the orchard, the meadow, the deep-tangled wildwood . . . the wide-spreading pond, and the mill that stood by it."

"Moss" a Valuable Sea Crop

Rocks along the Old Colony coast, unlike rolling stones, gather a valuable seaweed known popularly as Irish moss. For more than a century "mossers," chiefly from Scituate, have gone out in dories and gathered this moss at low tide with 12- to 16-foot rakes.

World War II cut off foreign supplies of moss and boomed this picturesque industry. Between March and September mossers now gather some 2,500,000 pounds of the seaweed from Scituate to Plymouth.

Sun-dried along the beaches, Irish moss is converted into a downy white powder. It thickens, gels, stabilizes, and emulsifies, and will suspend particles in liquid solutions.

These versatile properties have created an ever-increasing number of uses. To mention a few: it may be in your chocolate milk, suntan or hair-wave lotion, cough syrup and medicines, puddings and pies, salad dressing, beer and ale, toothpaste, face creams, shoe polish, or candy. It is also used in the manufacture of light bulbs, paint, submarine batteries, dental impressions, agricultural sprays, fertilizers, and leather goods.

Off Hatherly Beach, lobstermen use the tall steel antenna towers of short wave radio station WRUL and its three associated transmitters to "line up" their pots. Founded in 1935 by Walter S. Lemmon, famed radio engineer and inventor, WRUL is a powerful radio voice, which beams programs all over the world.

As [illegible] President Wilson on his history-making Versailles trip, Mr. Lemmon dreamed of using radio as a powerful force for creating "one world." Profit from his invention of single-dial tuning turned his dream into a nonprofit reality.

For several years, until war broke out, WRUL beamed college courses, good-will programs, travel talks, and world-affairs discussions around the globe. From 1939 on, its powerful voice broadcast in 24 languages to oppressed peoples. They risked life and limb to listen, smuggled out notes of gratitude.

After Pearl Harbor the station beamed "the voice of free America" 24 hours a day.

Warily I walked with Chief Engineer Louis H. [illegible]Donald through the Marsh-like maze of WRUL's larynx. Proudly he showed me his pet—a trolley-pole-like apparatus for redirecting short wave beams in a few seconds.

"No heating plant here," he said. "Channeled heat from the transmitters keeps us snug in New England's coldest weather."

A hundred years before the Revolution, Old Colony hinterland was wild frontier. Every old town history recounts the terrors of King Philip's War. From Scituate to Buzzards Bay scalping knife and firebrand plied their terrible trade. Many a lonely frontier family died sudden death before the conflagration was stamped out.

Photographer Sisson and I toured the frontier of 270 years ago. Time and war had left few traces of the 17th century. We did find Pilgrim John Cooke's grave in Fairhaven and a settler's cabin in Westport, said to be the lone survivor of the Indian war thereabouts.

We saw on every side a busy, modern Old Colony. Large industrial towns, like New Bedford, Fall River, Brockton, and Taunton, were humming with activity. Pleasant, elm-shaded New England towns formed islands in still-wide forest tracts. Rolling acres were just showing their first green, and sleek cattle grazed in lush pastures.

Returning to Plymouth in a gentle summer shower, I stood again beneath the giant boulder on Cole's Hill and looked across the bay. The setting sun peeped out, tinged sky and water with a subtle pink. Then did I glimpse the real, enduring Pilgrim heritage—courage, faith, and love of freedom which transformed a wilderness into a land for free men.

Camera! Nonchalantly Mr. Hummingbird Plays His Role under the Lights

[illegible]

Hummingbirds in Action

By Harold E. Edgerton

"WHY don't you take high-speed pictures of hummingbirds?"

Many a visitor to our laboratory at the Massachusetts Institute of Technology has asked that question. Our stock answer was, "You furnish the birds. We will snap the pictures."

Through friends I heard that Mr. and Mrs. Laurence J. Webster of Holderness, New Hampshire, had been training wild ruby-throated hummingbirds to become accustomed to the presence of human beings. As a result of their untiring patience, the birds had become tame and friendly.

Hence, I went with my photographic equipment to Holderness, and was amazed to find the birds there so tolerant of people.

It was a comparatively easy task to make the high-speed photographs, since I could focus the camera on the spots where the birds normally fed.

Later I learned with deep sorrow of the death of Mrs. Webster. This gentle woman, a bird lover for more than 35 years, was primarily responsible for taming the scores of hummingbirds which eventually made their home on the Webster property.

Third Generation Cares for Colony

Chiefly from Mrs. Webster's notes, supplemented by the observations of members of her family, I am able to recount the family's interesting experiences with a hummingbird colony over a period of nearly 20 years.

Since Mrs. Webster's passing, Mr. Webster has carried on the work of caring for the birds, aided recently by his granddaughter Mary Fidel's (Plates I and VIII).

As early as 1903, Mrs. Webster took up her hobby of feeding wild birds. Many of the stations she set up then have been in continuous operation ever since. The most important is the one established on an open piazza just outside the Webster living and dining room windows (page 220).

At one end is a vine-covered arbor, and at the other a few tall lilacs; low bushes line the front. With a southerly exposure, and protected from the prevailing winds, it is an ideal location.

Numerous and varied types of feeders have been put out, developed through experience to meet the requirements of the different birds. Millet, hemp, sunflower seed, suet, doughnuts, and chopped raw peanuts are kept here throughout the year, so that every feathered visitor can find something to his taste.

In winter pine boughs are woven into the vines and placed under an overhanging window to provide protection from enemies as well as weather. Thus at all seasons this piazza is a bird haven.

Chickadees and red-breasted nuthatches were the first birds to feed from Mr. and Mrs. Webster's hands. They were so tame that they came to them freely even when they were on horseback or in a canoe on the lake, long distances from home. In recent years the hummingbirds have received most of the attention, although the others have not been neglected.

Feeding Bottles Bound to Vines

Mrs. Webster's interest in hummingbirds was aroused by an article which appeared nearly 20 years ago in the National Geographic Magazine.* After reading it, she placed some vials filled with sweetened water on the vines, and was fortunate in having them discovered almost immediately. Ever since, the hummingbirds have patronized them constantly, and the colony has steadily increased.

These bottles were bound to forked branches with adhesive tape, then covered with ribbon and fastened to the vines at an angle convenient for feeding.

At first, ribbons of different colors were used to match the birds' favorite flowers. Now the feeding ends of the bottles are of colored glass. Most popular is red.

The ideal bottle size is just under an inch in diameter and two inches deep. Once Mrs. Webster used a larger bottle to avoid refilling so often, and a bird slipped in when reaching for the last drops of liquid.

He could turn around, but could not use his wings; so he was held prisoner all night. His bill provided an excellent handle for rescue, and after he had been fed a little, he flew away, fortunately unharmed by his trying experience.

Visitors Have a Sweet Tooth, Too

Squirrels and chipmunks like the sweetened water, as well as bees, wasps, moths, and ants (Plate II); while purple finches, catbirds, Baltimore orioles, hairy and downy woodpeckers, white-breasted nuthatches, and myrtle and black-throated blue warblers often come for a drink.

* See "Holidays with Humming Birds," by Maurice I. Bodine, in the National Geographic Magazine, June, 1928.

[illegible] Photographer Charles L. Weltner

A Quarter Will Cover the Floor of a Hummingbird Nursery

[illegible]

The squirrels place their paws around the bottle and pull it down, causing waves of liquid to flow into their mouths. At first when they could not get their drink, they became very angry and growled on the branch. This difficulty was overcome by using wire [illegible] which are taped to the larger stems of the vine.

Flying squirrels also appreciate the sweetened water and often make evening visits to the upstairs bottles and bird-feeding shelf.* After a feast of sunflower seeds, doughnuts, and chopped peanuts, they literally drape themselves around the bottles and have a [illegible] dessert, remaining even when the lights [illegible] [illegible] Mrs. Webster [illegible] sugar water [illegible] parts of water. Thirty vials and ten special [illegible] tube feeders are used and many of these must be refilled seven times during the day.

To attract the birds [illegible] fresh; therefore the bottles are cleaned with [illegible] long. During this operation the birds show their [illegible] ness and appreciation in a great [illegible] hovering outside or flying in their [illegible] when the door opens, or drinking from the vials as the [illegible] [illegible]

When working in the diet kitchen, prepar-

[illegible] National [illegible] Weltner [illegible] the National Geographic [illegible]

ing their food. Mary Fadeln usually whistles or hums, as her grandmother used to, and this seems to act as a dinner bell. Birds immediately begin to congregate even when none have been around previously.

Mothers Bring Young to Feed

At first there were only three or four birds in the colony, but one summer recently it was estimated by two eminent ornithologists that at least forty birds were feeding here, and that possibly the colony numbered as many as one hundred birds. This probably represents a natural growth, because the young are brought to feed on leaving the nest, and they remain.

Often a mother is seen feeding her young, and later the youngsters are easily recognized by their awkwardness in feeding themselves. They often try to insert bill and tongue between bottle and ribbon, but when they once find the opening they ensconce themselves on the perch provided and refuse to be driven away.

For some undetermined reason there is decided preference for special bottles. As the bottles are uniform in size, shape, and color, and all are placed conveniently and filled with the same solution, it is difficult to understand why they are not patronized equally.

Fortunately, the favorites are on the post outside the dining-room windows, and it is like a three-ring circus to watch the remarkable exhibitions of darting and rapid flight here each evening. The birds are so numerous and so active that it seems as if they came together for a last game of tag before retiring.

Everyone connected with the Webster household seems to enjoy an opportunity to care for the birds; as a result, there is never a time when food is not provided—a factor in attracting birds which cannot be overemphasized.

Hummingbirds have the reputation of being very pugnacious. Often they come to grips in the air, and once a female was seen to land squarely upon the back of another and literally claw her victim away from a vial. On the other hand, varying combinations of these birds often feed contentedly from the same vial—two males, two females, males and females (seldom), and occasionally three males together (Plates IV and V).

A Finger Becomes a Perch

Perhaps the perches provided near many of the bottles are conducive to more peaceful feeding, for once two males perched side by side while a third hovered above, happily awaiting its turn to drink.

An enforced rest provided Mrs. Webster with an opportunity to experiment further with these fascinating birds, and it was then that she succeeded in enticing them to perch on her finger while feeding. A branch was fastened to the chair in such a way that the bottle was just above her hand, where it rested naturally and comfortably on the arm.

Under these circumstances the birds provided increasing interest and entertainment throughout the summer. They are now so tame and friendly that they come to the Websters at some distance from the house.

In the garden, Mr. Webster has been able to place a finger under a bird feeding from a delphinium spike and move her from blossom to blossom. Apparently she appreciated the lift.

It was at an upstairs window that Mrs. Webster had her most intimate experiences with these tiny birds. Five bottles are placed here permanently. In addition, Mrs. Webster often held two vials in her hands and two in her mouth.

The latter were attached to a wire "bit" with small perches, where the birds alighted and remained even when she winked and moved her eyes.

The Hungry Male Intervenes

Often eighteen or twenty birds would hover and perch near her, with three feeding together from the small bit bottles at times. It was a thrilling experience when a male pre-empted this bit, and fought off all comers for a whole evening.

They also would investigate Mrs. Webster's glasses. When they drank from the vials in her hands, she could see plainly the division at the tip of their tubular tongues. Often they would hover just outside while she raised both window and screen; then they would fly into the room and circle her head in their eagerness to get the fresh liquid.

One evening, when Mrs. Webster sneezed, a bird on her bit perch rose in the air, but immediately settled back again with perfect confidence.

Another time, when a bird was sitting with his back to her, she slowly moved her hand and touched his tail. After she had exerted considerable pressure, he turned his head; then seeing the bottle of liquid, reached over his shoulder and drank. This he did three times, though she continued to press upon his tail.

From this window one can watch an almost continuous succession of entertaining episodes in bird and animal life. It overlooks the

piazza already described, as well as a bird-bath, two revolving feeders, and shrubbery planted especially to attract birds.

Many visitors come to feast on the fruit of the cornel, lonicera, viburnum, and elder. Five scarlet tanagers were seen here at one time on the weeping mulberry tree; flocks of bluebirds and thrushes come for the woodbine berries; and partridges arrive regularly for cracked corn and the fruit of the bittersweet.

Families of young are brought here for meals; foxes appear at the edge of the woods beyond; owls fly over, pursued by crows or other birds; and once the Websters saw a hawk being chased by two hummingbirds.

A pileated woodpecker flies over frequently, and one year a pair of wood ducks passed by every afternoon on their way from their nest to the lake for feeding. Perhaps the most unusual occurrence was seeing and hearing a redpoll in full song—an exceedingly rare privilege so far south.

Here, too, the hummingbirds are seen [illegible] vigorously on [illegible] way, or in a few drops of rain or dew in the depression of an upturned leaf. The latter makes an ideal bathtub for them.

Evening Is Playtime

Hummingbirds continue to feed until dusk, and during the peace and quiet of the evening show their greatest friendliness and fearlessness.

Experiments tried at this time seem almost like games, which the birds apparently enjoy as much as the Websters do, for they flock around the upstairs window and allow many surprising liberties.

During this performance the family usually resorts to an insecticide, because bees, wasps, and mosquitoes also gather in large numbers. Curiously enough, the odor does not disturb the hummingbirds at all, but they are sensitive to strange voices and will not come freely when a visitor is talking.

It is interesting to observe the variation in pitch of the hum characteristic of the hummingbird's flight. The pitch of extremely rapid flight, which is occasionally heard, is more than an octave higher than the lowest hovering note.

In the spring, as the day for the birds' return approaches, everything is in readiness to provide their special refreshment. On their arrival they fly directly to the position where each bottle was located the previous year, then watch as the bottles are filled and put out, as if there had been no interruption in their visits.

This has happened so many times that no banding is necessary to prove the same birds return year after year.

These birds have become so accustomed to being studied at close range by large groups of people that they were only temporarily disturbed by the assembling of my photographic equipment.

The series of Kodachromes reproduced with this article was made last summer with both 2¼" x 3¼" and 4" x 5" cameras, with two Kodatron electric-flash lamps spaced about two and one-half feet from the subject. A CC15 filter was used to correct the color of the light to give true rendition. An aperture of f:8 was used.

Kodachromes were also made with an experimental flash unit some ten times more powerful than the Kodatron.

Most of the birds would fly a few feet away after the flash of light, but invariably they returned immediately to continue their repast. Eventually some of the birds ignored the lights, even when the larger flash units were concentrated only a few feet away to obtain sufficient illumination for color photography at f:16.

High-speed motion pictures were also taken of the birds with a stroboscopic lamp synchronized to the motion of a continuously moving film. This camera was operated at 800 frames per second with an exposure time of 0.00001 second per picture.

Camera Whir Disturbed Birds

The sirenlike noise of the camera running at this speed seemed to disturb the birds, so the camera was put in the house and the movies taken through the window. A shield was constructed to obscure the direct daylight from the camera; otherwise it would have produced a blur on the film.

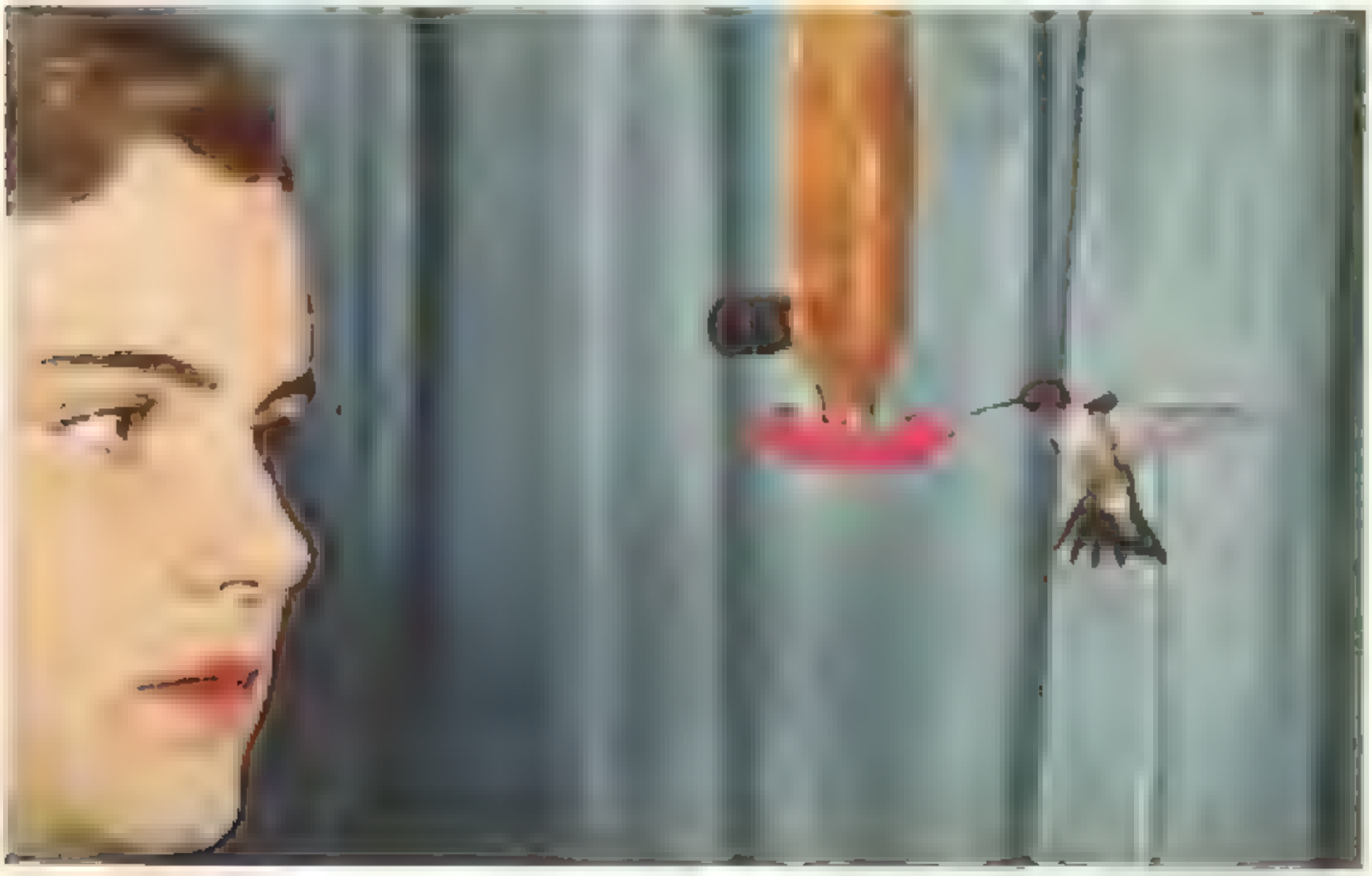
A collection of motion pictures was taken which showed the birds in several phases of flight, landing, and take-off. Many people have enjoyed these pictures on the screen, since the motion of the wings can be slowed down until it is possible to see what is happening.

A study of the film shows that the wings beat 55 times per second on the average when the bird is hovering. The wing-tip velocity is about 20 feet per second (20 miles per hour).

With an exposure of 1/3000 second, as is used in the color pictures, the wing tip shows about a 1/10 inch blur because of the motion.

Confident Mr. Hummingbird Accepts Mary Fidelia's Finger for a Perch

The young male ruby-throat belongs to a colony which has spent the last [illegible] Mr. Wolcott's staff daughter [illegible]



Horse Water Lures Hers On; Widespread Tail Means Either Bravery or Defiance

[illegible]

A Dainty Transient Guest Leaves Its Feeding Place

[illegible]

Colored Beads of Feeding Viols Attract Hungry Visitors

[illegible]

Soft Plant Down and Milkweed Line the Hummingbird's Nest

[illegible]

Unfortunately, This Young Male Ruby-throat Flew Back Into a Second Pantyhose "Snare."

[illegible]

"Stand Back, Man, I Was Here First"

Dinner Time for a Bottle-fed, Baby-size

Contrast of Female Hormones Get Together on an Alternate Spot of Human Water

"A Bunch of Hopeless Ladybirds" or Mist and Rainbow Dress

Image Intended to Accompany a Female Causes Fashion Debate

"Hanging" in Midair, a Worn Hummingbird Leans for Possible Danger

Escape in Mid-air, Wings, or an Backstroke, the Bird Here Is Actually Motionless

Mary Fidelia Feeds Mandrake Nectar into a Feeding Vial on the Webster Sun Porch

As Mary Fidelia Fills One Vial, a Feathered Visitor Sips at Another

Scenes of Postwar Finland

By La Verne Bradley

With Illustrations from Photographs by Jerry Waller

WE WERE dead serious about our trip [illegible] mood for humor. Having just returned from zero temperatures in Poland, we didn't think Sam's telegram, which met us in Paris, at all funny. It said, "Suggest you wait two weeks. Not sufficiently cold!"

We waited. Then, late in the month, our little Swedish steamer, making its last run from Stockholm to Finland's capital before the big freeze, crunched through ice-blocked waters and into the ice-locked harbor of Helsinki.

We had followed a course across a wildly rolling Baltic and into a path carved by icebreaker through the sprawling islands of the Turku archipelago. Two weeks later we crossed this path by horse and sleigh, and learned why up to then it had not been "sufficiently cold."

The temperature was only 10° above zero F. that first raw night in Helsinki.* While we were waiting for the greater cold and our ultimate tour of the southern islands, plans had been laid for a hurried trip to the north of Finland.

We Head for Lapland

At 8 the next morning, with barely a flush of light over the runway, we lifted into a frosty sky and headed for Lapland (map, p. 257)†.

"We" included Jerry Waller, our photographer; Samuel Kinsow, the American Red Cross representative for most of Scandinavia and Finland; and myself, on a survey of relief activities in Finland.

We flew in an old DC-2, handled by giant Finns of serene self-confidence.

Below us lay a land of snow, increasing in white intensity as we moved northward. Tampere, largest industrial city of Finland, lay perfectly patterned to the right, smoke curling from its textile and paper mills, its leather and metal factories.

Farther north in the cultivated lands along the coast, fields were dotted with tiny sheds holding the summer hay and stores of hard-working farmers waiting out the long winter. The frozen Gulf of Bothnia sent icy fingers into the land and held it in its grip. Forests, weighted with their burden of snow, slept quietly under the spell.

As we circled Kemi, we noticed cargo ships frozen in the harbor, and fishing boats, lined bottoms-up along the ice-sheeted shore. The days were offering a little more light now, but the worst cold lay just ahead. The land and the sea seemed locked in readiness. Cities, rural communities, people, and animals adjusted themselves to the elements.

Within 18 hours of landing in this white country of the North, we had seen the wonder of winter as it lays its hand over a nation and bends the lives of the people to its will.

Within 24 hours we were to see the strength of these people, whose tragedy lay not in the battle against snow and cold, but in the failure of mankind to guarantee them the right to make the most of it.

Warm Welcome in the Frozen North

Following the destruction of Rovaniemi, Kemi was made the provisional capital of Finland's farthest-north province. In Kemi, the Governor of Lapland had lunch waiting for us‡.

This bright and unexpected gesture of hospitality was due to more than the traditional Finnish sociability.

First, we represented the American Red Cross which had sponsored the biggest American relief program in Finland since the war (pages 234 and 238). Second, the Finns were touched by the fact that we had picked their most difficult season to visit them. Third, and most important, not many Americans have found their way to this country in the last seven years, and the Finnish people have an admiration for America which barely falls short of idolatry.

Any contact with the United States becomes a matter of national and personal importance to every one of them.

The aching tragedy of having been even briefly on opposite sides of a war involving America lies heavy on their hearts. For the most part, they attempt to dismiss it by saying we were not at war. They are oversensitive as to what the current feeling in America

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Farthest-North Republic," by Alma Luise Olson, October, 1938, and "Helsingfors—A Contrast in Light and Shade," by Frank P. S. Glassey, May, 1938.

† See "Nomads of Arctic Lapland," by Clyde Fisher, NATIONAL GEOGRAPHIC [illegible], November, 1[illegible].

‡ Lapland is the name of the vast area stretching across northern Norway, Sweden, Finland, and part of the Soviet Union. It has no political boundaries, but that name of the individual nations. In speaking of Lapland throughout this story, I refer to the Finnish province.

"I Didn't Know the World Could Be So Kind"

[illegible]

On the Jacobs Farm at Vikajärvi, a Cook Does the Monthly Baking in a Centuries-old Oven

[illegible]

[illegible]

The "Petsamo Triangles"

From Kittilä we cross the [illegible] to the Petsamo triangle," being great [illegible] to the beautiful Kaunisvaara.

[illegible] prewar Finland – [illegible] a [illegible] and [illegible] skirt and [illegible] to the north. Following the [illegible] with Russia, [illegible] young girl has been impressed [illegible] Her [illegible] were [illegible] and spread [illegible]

[illegible] to the eastern and southeastern frontiers.

And she had observed within her new [illegible] some [illegible] Finns from these lands who were faced with the problem [illegible] new homes and new ways of living.

The people of Petsamo, the [illegible] square [illegible] has been [illegible] from the [illegible] of Petsamo (Petsengi), and [illegible] nickel and copper mines [illegible]

In resettling these people, the Government has [illegible] a place [illegible] small, in [illegible] of Government land [illegible] the northern land also [illegible] the [illegible] of the [illegible] along the Kemi River [illegible] the Petsamo triangle.

[illegible] New Finns [illegible] the central valley of the Petsamo triangle. This was deep [illegible] and could be seen traveling along the streams [illegible] and small snow-

Warmly Clad, the Author Stands on the Arctic Circle

When the [illegible] the author [illegible] the Polar Circle [illegible] the Alaska Frontier Service [illegible] Mme. Eva Verne Prentiss [illegible] Alaska [illegible] the Alaska [illegible] Arctic [illegible] it was [illegible].

from the hill side in the forest. It was [illegible] and beginning to darken. The community was set up down in the large [illegible].

Life Begins Anew

Spread out from the central village, with its long barracks set up for the soldiers and their families, were cottages for new permanent settlers, and beyond these, into the distant reaches of the forest, new farmhouses, huts, or temporary dwellings of the simplest form. Into this region, now reached by rail, a new border came in the American Northwest.

Life was new. These people had begun again. They were to be woodsmen, or carpenters, or general workers, or farmers.

The man he called the Lumberjack or Red Cross worker at New Town lived with his family of three in a two-room cabin. The cabin had been constructed partly in one for winter use. Before this they had lived in the others had lived in wigwam-like tents such as the Lapps use far into north. The man had been an accountant schoolman in Pittsburgh. Now he worked daily [illegible] track and cut it in stoves for the settlers.

His neighbor lived in a much larger building, the size of the Lapp place, for his wife and four children also contained themselves in two small rooms.

The rest of the building, through [illegible] and board walls, was for livestock. Next summer, when a barn could be built and new well got up, the family would move into the rooms where the cattle now sleep in winter.

Meanwhile, the Lumberjack could be drawn only for make [illegible] there were strawberries alone. The animals were part of the family, and were supplied with [illegible]. They were the wealth—and the same strength of these people who were living with [illegible] and confidence unknown in landscape [illegible] with those of [illegible] and [illegible] in pioneer days.

Very little [illegible] was. The people were [illegible] the territories added to Russia might have kept their homes and land if they had gone to become Soviet citizens. I once asked a Government official how many had

* [illegible] the American Red Cross [illegible] transportation [illegible].

chosen to remain. He said, "About 10

"About 10,000?"

"About 10 people."

We were hardly prepared even yet for the shock which met us at Rovaniemi.

This former sparkling little capital of Lapland lies on about the same parallel as Beaver, Alaska, just a sliver south of the Arctic Circle. Before the war it was probably one of the most sophisticated backwoods cities in the world. Its modern hotel of shimmering glass and concrete was known throughout Scandinavia—and the skiing world.

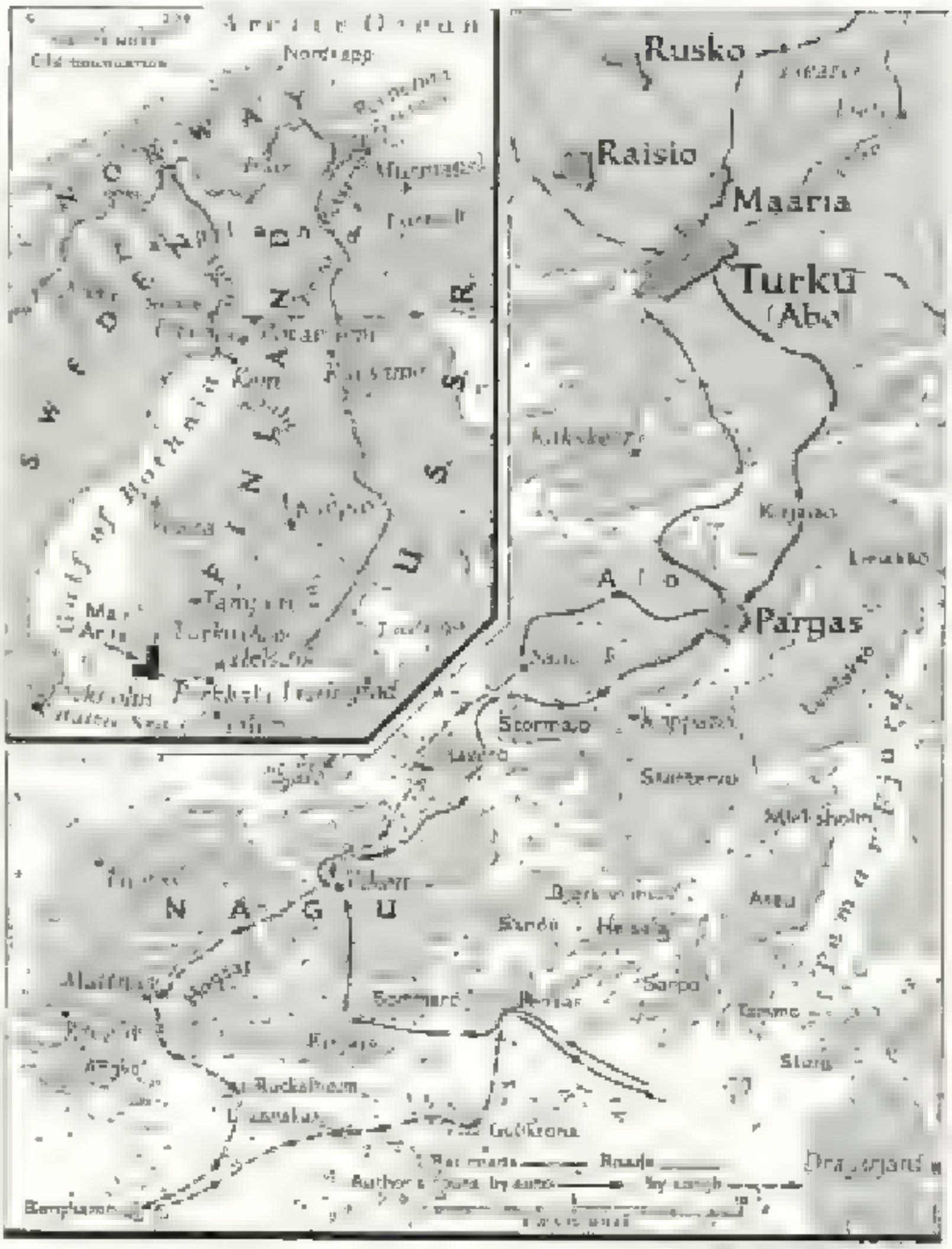
It was a storybook town of old and new, people in smart ski clothes moving among modern buildings and mingling with lumberjacks and millworkers lounging along the edge of wooden sidewalks. People tell of the Lappi couple who used to appear at the hotel for a week each winter and sit in full brilliant costume sipping champagne at its fashionable bar, then quietly disappear for another year to their nomadic life of tents and reindeer.

Today Rovaniemi is called "the city of chimneys." Totally destroyed in the vicious punitive retreat of the German Army in 1944, the only remnants of its former outline are the brick chimneys of the burned houses, which stand like ghostly tombstones among its ruins. They are known as "Hitler monuments" (page 240).

Throughout northern Finland they identify the former farms and villages demolished in the fury of Nazi defeat.

When Finland signed the armistice with Russia in 1944, it caught an estimated 100,000 German troops in the northern and eastern parts of the country.

As the Finnish Army re-formed along the



Travelers Go to Sea in Sleighs in Southwest Finland

When winter locks the waters, boats are put away, and the ice becomes a road bed for a variety of conveyances from skates to automobiles. Inset shows the whole country; the large-scale map the area in which the author made her journey over the ice for the American Red Cross. Free Finland is governed by a President and a single legislative chamber. Its population is now 4,000,000.

Oulu River and began its drive to push the new enemy out of the land, the Germans fell back to the north, to retreat through Norway. Those in the Petsamo area hurried south and west to follow the same corridor.

In their wake they left perhaps the most thorough devastation of any battlefield of the war. The only part of Finnish Lapland that was spared was a small section in the southwest which the Germans were forced to abandon before they had time to scourge the earth.

An area of some 35,000 square miles was laid waste. Every farmhouse, barn, or haystack in their path was destroyed. Isolated

Dire Want Forces Helsinki People of All Walks of Life to Seek Relief

[illegible] ... the American Food ... Finland. [illegible]

cabins and even whole Lapp huts on northern farms [illegible] were burned. Mines were left in their wake. More than 175,000 people fled their homes, moving west [illegible] across the [illegible] River into Sweden.

Most of these families have returned to their land by now, and with the refugees from the lost territories have begun to rebuild.

Rovaniemi, [illegible] Alvar Aalto, is to become the most [illegible] and streamlined, the most modern city in Finland—a model town set off in the wilderness.

Some of the new modern buildings are already beginning to take shape in contrast to their present [illegible] among the [illegible] around them. But for the most part Rovaniemi as we found it was [illegible] town at the [illegible].

As for temporary houses [illegible] most of the population lives [illegible] temporary [illegible] a temporary [illegible] their [illegible] school buildings. People live and work with [illegible] in all northern

inhabitants, increased twofold because they are Finns.

A Steam Bath and Snow Roll

It was in Rovaniemi, on the Arctic Circle, in January, that I had my first *sauna* (steam bath) and *pieharuinda* (snow roll)!

The Finnish steam bath is not only a national institution, a social function, and a family law; it is one of the experiences of a lifetime.

Saunas, usually built as separate little houses near the main homestead, are arranged inside like small amphitheaters with raised rows of benches, to be mounted progressively according to one's capacity for absorbing heat. In one corner is the big pile of stones heated from underneath by a roaring fire. Near by, a caldron of hot water, and, on upside, either a hose, a faucet, or standing buckets of cold water.

As dipper after dipper of cold water is ladled upon the hot rocks, great clouds of steam rise to the ceiling and settle over the bathers like a suffocating blanket. After the first gasp, the rest is not so bad. Then the atmosphere becomes specific. People unaccustomed to the oppressive heat must have someone along who knows how to gauge the steam.

In Finland, one seldom takes a bath alone, anyway. Usually it is either the whole family at a time, or all the men, then the women. There are almost always guests. Two Finnish women accompanied me to a neighbor's sauna, which had been heated specially, since this wasn't traditional Saturday sauna night.

About the time I started to melt down like a wax figure and slip through the scrubbed planks in liquid form, one of the Finnish women reached down, dipped some birch leaves in a bucket of water, and began to beat me. A pungent bayberry smell filled the sauna. The birch beating is to stimulate the skin and leave it with the clean scent of the broken leaves.

They told me when I had had enough. They told me! We descended from the gallery and began to wash down in lukewarm water from basins. Because I was a guest, one of the women must scrub my back—hard, quick strokes with rough paper sponges. Soon I began to feel cohesive again.

The snow roll was my idea, of course. They had done it before, I later learned, but not often. I thought it was part of the ritual.

We opened the door, great swirls of snowflakes rushing in, and stepped into the Arctic night. I steadied myself for a second, then followed them with a swift pitch into the nearest snowdrift.

The shock was paralyzing, but over quickly. We staggered back and leaned limply against the warm walls.

Suddenly I was more completely alive than I had ever been in my life. I exulted. I washed down in buckets of ice water and began to sing excerpts of "Finlandia."

We went into the dressing room where there was a small fireplace blazing and, wrapping ourselves in towels, stretched out to begin the [illegible]

I was tingling with a physical well-being that made me wonder why this famous orgy is not world-wide. No wonder, I thought, no *wonder* this is a race of runners and fighters!

The Spell of Space

It is hard to say what makes Lapland so compelling—the haunting half-lights, the vast stretches of solitude, the sense of the infinite.

Looking over the long reaches of white land with the quiet timbered ridges in the distance, one can stand for hours caught in a hypnotic spell of space. The problems of a worried world seem remote and out of keeping here. It was inconceivable that these extravagant wastes had been caught in the sweep of war.

One feels that man tempted fate by intruding his discordant failures to the harlowest beauty of this wild country. The frozen bodies of soldiers lying across its wind-swept face once testified to that.

I wondered what Axel Munthe's "Little People" must have thought about it all.

We took off at dawn one morning, which was about 9 o'clock, to hear for one of the worst war-damaged districts of east Finland.

It was an all-day trip. When it was over, the snow roll had paled into insignificance but my respect for the Finns had increased by leaps and bounds—precisely.

We drove in a sedan, which was warm, fortunately, but the driver was a madman. Besides, he had a wooden leg. He wasn't a madman, actually. We learned that all Laplanders drive this way. We raced wildly over snowy roads at 50 or 60 miles per hour, leaving a cloud of powdered snowdust billowing over the countryside. We sped through thickly forested valleys, around ice-banked bends, across frozen lakes and rivers.

Roads were incidental. There was nothing to do; he couldn't be stopped. And it seemed he didn't need to be. He knew more about handling a car in snow than Santa Claus knows about his Lapp reindeer. When we found this out, we grew very fond of him. He was, in fact, Risto Manninen, one of Finland's much-decorated war heroes (page 261)

"Hitler Monuments" Scar Finnish Lapland

[illegible] the [illegible] Army, German [illegible] Finland [illegible]

Kuusamo, also a market town, and a former summer resort where people once fished and boated among the beautiful lakes and streams of the area, was as badly wrecked as Rovaniemi.

A Tragic Shifting of People

[illegible] Just to the east, about [illegible] miles, lies the strip of [illegible] Russia at the end of the "Winter War" of 1939-40. At this time, when the people evacuated the territory, they moved to Kuusamo and its neighboring communities up and down the new border.

During the "Second War," German and Finnish troops pushed the Russians back to regain the land, and the people returned to their homes. Then the Finns signed their armistice with Russia, and the strip went back to the Soviets.

Again the people left their land, this time, as far as we know, for good. But now they were forced to [illegible] far west to escape the new conflict.

It was along this eastern border that the Germans began their [illegible]. Two houses in Kuusamo were left standing [illegible] valuable reindeer herds [illegible].

[illegible] who returned have struggled to restore a livable city, but here, more than anywhere we went, we found a piteous people, crowded into [illegible] shelters of loose planks stuffed with paper or huddled in abandoned military bunkers—anywhere to find refuge from the unrelenting northern cold.

Kuusamo, too, has its name—"the city of *kotas*." These are the low [illegible] huts built as barracks first by Finnish soldiers and later, in greater numbers, by the Russians. [illegible] against artillery [illegible], they were also found to be the warmest [illegible] for troops against wind and blizzard. Ten men would be billeted in the one [illegible] room (pages [illegible]).

[illegible] The roofs slope to the ground. They look like [illegible] light, no air. They smell [illegible]

There was [illegible] in this [illegible] town before the war. Today it is a [illegible]

"Finnish Red Cross—Gift of the American Red Cross"

[illegible]

We [illegible] to travel, visiting [illegible] understaffed, poorly clothed. We saw the country in the [illegible] stage, first [illegible] to be restored, waiting for the machinery of reconstruction to [illegible] that is later home.

At Last, "Sufficiently Cold"

There is no way of [illegible] the [illegible] we experienced from [illegible] and another. We had been tragedy in many [illegible] We [illegible] we [illegible] quickly [illegible] through the [illegible] beautiful [illegible] Finland past the [illegible] burned [illegible], past hard-working people striving to regain their self-[illegible], we felt [illegible] Finland here [illegible] most [illegible] tasks.

A few days after our return to Helsinki, word came that an Finnish archipelago was at last [illegible] it. [illegible] sufficiently cold to proceed with our [illegible] experiment.

We took the train to the [illegible] city, after which for what [illegible] normal [illegible] in the heart of Swedish-speaking Finland. We learned that we were [illegible] for the Turku archipelago, [illegible] for Skärgården [illegible] "Archipelago." (Also is the Swedish name for Turku.)

Swallowed by Mist, Dozens of Isolated Islands Form a Panorama of Vast but Lonely Beauty about Pepor

[illegible]

Though No U. S. 1, This Route Across the Frozen Baltic near Gulbenova Is a Posted Highway

Stand Upon 2 and 1 [illegible]

Six American Ambulances Bolster Finland's War-depleted Medical Equipment

Gift of the American Red Cross to the Finnish Red Cross [illegible] Helsinki [illegible] Lapland.

Though Snow Is Deep, Public Health Service Carries On

Elma Avila, Finnish Red Cross and Public Health nurse, shows how she and [illegible] at 40 [illegible] take medical supplies and [illegible] In her knapsack [illegible] antiseptics, hypo-[illegible]

Turku itself is now predominantly a Finno-Finn city, but the islands are still 90 percent Swedish-speaking, the people being descended from the Swedes who lived here when Finland was part of her western neighbor.

The Turku chain is one of the most thickly islanded archipelagoes in the world. In winter caught between icy winds blown down from the frozen Gulf of Bothnia and up from the raging Baltic, it is also one of the coldest. Legitimate islands number some 30,000. Beyond, between, and peppered over the 5,000-square-mile area are thousands of smaller unnamed, uninhabited skerries, reefs, and [illegible] jutting impudently in the path of [illegible] traffic—when there is any.

The permanent population of the islands also numbers, curiously, about 30,000. This does not mean one per island (though it does it seemed at [illegible]) people cluster mostly about the larger land groups.

Special among the small outer islands, however, are the tribes the true "Swedes" — ers," who for generations have lived a life of resigned isolation; backwards, for the most part, but self-sufficient—until war.

They are a hardy race, used to extremes of climate, minimum comfort, and simple needs. Now war restrictions, rationing, and the privations suffered by the country as a whole had caught them in their isolation and brought many to the brink of disaster.

Across a Bridge of Ice

In the fall or winter when the ice is forming, and in the spring when it begins to break, these people are completely cut off from all physical contact with the world. Horses, sleds, and boats are immobilized. Weeks may [illegible] Not even the [illegible] few to make the [illegible] trip in winter, anyway. They must simply wait for the mixed blessing of severe cold to restore their bridge to the mainland.

And so had we.

We began our strange expedition by car from Turku across the handsome arched bridge spanning the sound to the island of Aldo. There, near Sandvik, at the outer edge of the island, horses and sleighs were waiting.

This was it. We looked out across the limitless sheet of ice—and hoped our Finnish friends knew what they were doing.

Pulling on fleece coats, we slid under heavy fur robes, our feet were placed in fur sacks

over hay packed on the bottoms of the sleighs for insulation. The horses swung toward the trackless waste. We pulled off the shore ice to the frozen sea (page 252).

A new four-inch snow muffled the rhythm of the hoofbeats; the sleighs moved quietly into space with only the soft whir of the runners sounding in the silent darkening afternoon.

There was no other motion, no sign of life for more than an hour. Even we were silenced by the enormity of the vast white panorama.

Suddenly in the distance we made out some figures standing by what looked like a giant rent in the surface of the ice, and soon we drew up to the floe-strewn steamer channel, through which we had passed further south on our way to Helsinki two weeks earlier.

As we approached, attendants had come out from a tiny shack sitting forlornly beside the stream and rolled a bridge over the gap for the sleds to cross. People traveling ice-wise to the islands must know their way to this point. Expert on island geography, our new guide, Capt. Kurt Leon-Linth, formerly of the Finnish Army, led us to each strategic spot with infallible ease.

In the Heart of an Island Group

It was dark when we reached Vikom, in the heart of the Nagu group. We drove up an avenue of tall snow-laden pines to a baronial old farmhouse. Stretched on each side were smaller houses, great barns, and rolling fields; beyond these, the shadows of rich forests. This was to be our most lavish experience for several days.

There are few large working estates left in the Skärgården. This, our first night's stop, was owned by another former Army officer who had bought it as a summer home. The archipelago is one of Finland's most popular summer vacationlands. At the peak of the season the population is more than double its winter complement.

But the owner now lived here the year round, working the 1,200 acres of timber and pastureland and supplying his family, friends, and workers with food and goods that could not otherwise be obtained on Finland's present depleted market. In a much larger way, he was doing what the smaller farmers in the outer islands have been doing all their lives.

Mrs. Leonhe today bends over her *Marthastirsted* (Martha loom),* weaving scarves, [illegible] from her [illegible] spun herself, just as the outer-island women have done for generations (page 246).

While Captain Leonhe directs the land work, his wife supervises the care and feeding of the livestock, the weekly baking in the outer ovenhouse (page 235), and the management of the big home.

As Public Health nurse for the government district in which they live, she also travels by sleigh or ski (and by boat in summer) to the outer islands, checking the health of the people and carrying medical supplies (from America) to those in need.

It is a hard and busy life, and as isolated as the distant fisherman's, but in a warm house stocked with good books, music, and food, they live well. In years of want they have found self-sufficiency.

Among the farmers and fishermen of the outer islands, the situation was reversed.

At Mattnäs, in the southern part of the Nagu chain, we picked up Harry Lindell, the postman, a hardy, placid Swedo-Finn, who knew each tiny island outpost and, more important, the ice between (page 262). With Lindell, Sam, and me in the lead sleigh, and Kurt and Jerry in back, we turned to the open sea and headed south.

Finnish Family Johanssen

The family Johanssen lives on the island of Rockholm. Their three-room cottage sat on a snowy slope overlooking a tiny cove where fishlines leading into small holes in the ice were the only evidences in the whole glacial scene that there was life anywhere within miles.

In the crowded little kitchen three people were hard at their winter's work. The mother sat in one corner by a basket of raw wool, carding it into soft rolls for spinning. Her son had his bicycle apart, repairing the wheel joints. Mr. Johanssen was off in another corner mending a huge "battle" net, which stretched in circular billows across the room.

Unlike the many former-fisher families we visited over the islands, the Johanssens were fishing people only. They had no land. They bought their year-round provisions in summer from a community store on one of the bigger islands.

This year, with strict rationing making it impossible to get in supplies, they were reduced to a diet of potatoes, porridge, and fish. In a good year the Johanssens earned about $800 from their summer catch.

But, the old man said, there had been only a small market during the war, and it was hard to get material to make new nets or repair equipment. A big herring net is good for only three years.

* Named for the Martha League, a Finnish women's group which had, during recent years, introduced looms and other home-craft projects among the housewives of Finland.

A Landowner's Wife Does Her Own Weaving

[illegible]

As we rolled the wheels [illegible] of Finnish hospitality. [illegible]

A Coffee-Hungry Country

[illegible]

[illegible] Finland's [illegible] Kurt had had his [illegible] in Lapland. [illegible]

As [illegible] Finland [illegible]

[illegible]

[illegible] [illegible] their [illegible] seal shoes.

This was good for about half an hour, when we again had to turn south into the [illegible]. [illegible] the ice was [illegible] thick. Suddenly, with an unexpected [illegible], water struck the horse's [illegible]. He shied and charged ahead in reckless fright. We landed on the ice and I saw the sleigh [illegible] would [illegible] we turned to warn them, but as [illegible] it. Their horse jumped and then set off on a run which almost threw Jerre and Kurt on to the ice.

The Wisdom of Horses

Animals [illegible] strange instinct for danger that leads to immediate action when aroused. Usually, the horses were [illegible] [illegible] slowing down and dipping their [illegible] as if to determine the [illegible] of the [illegible]. They were [illegible] [illegible] to their [illegible] for the [illegible]. They [illegible] [illegible] [illegible] with complete security. They were never asked to.

Undaunted by Cold, She Goes on an Errand of Mercy

Nurse [illegible] [illegible] [illegible] back to [illegible] Islands [illegible] [illegible] American Red Cross [illegible] Folke Bernadotte [illegible] in Finland [illegible] [illegible] Finnish [illegible] [illegible] by the Finnish Red Cross.

We came to love these animals with an almost human attachment. They were considered equally in all our plans. One morning I was not surprised to find Lennart warming [illegible] [illegible] with his own mouth.

It was on one morning that we learned we could not continue across the ice to the southern islands. A warm wave which had dropped the temperature [illegible] [illegible] in northern Sweden was heading south. It had already begun to [illegible] the shores.

We had stayed overnight in Bergham Island, scattered out individually among the different island families.

I had passed the previous day [illegible] in a two-century-old cottage with an aged widow and her [illegible] son, [illegible] huddled by the big brick stove which with its great metal canopy took up about a fifth of the kitchen and [illegible] kept us warm.

I was [illegible] with [illegible] simplicity and comfort. Even the [illegible] in the one-room school [illegible] off for winter had been [illegible] a costly sacrifice on this little island which, rocky and barren, had to import its [illegible].

And before I went to sleep, the old lady had pressed a precious sugar cube in my mouth

Maxwell Hamilton, U. S. Minister to Finland, Presents a Gift to the Finnish People

[illegible] Chief of the Medical Service of the Finnish Government and Vice President of the Finnish Red Cross, receives the title to the [illegible] used by transportation-short [illegible] Finnish Red Cross, and at [illegible] Finland.

merched in some home-made alcohol to "warm me up inside" for the night. It didn't work.

By morning the temperature had dropped to [illegible] F., a completely unexpected turn in our plans. With news of the approaching cold wave, Lindell and Kurt relaid the course to take us to nearer islands which would still be representative of what we wished to see, but where travel time between could be kept to a minimum.

Faces Frostbitten

We pulled away from Borgharn and headed [illegible]. As we struck the open sea, an icy wind [illegible] us head on. Within ten minutes Jerry's cheeks were frostbitten. Kurt grabbed a handful of snow and began to rub the frozen white patches vigorously.

A few minutes later, one side of Sam's face went white, and Lindell, actually frightened for the first time, quickly began the same procedure. The two victims sat from here on with faces completely swathed in scarves. I seemed to be hardier, and was enjoying the vast and melancholy beauty of the wild scene when suddenly my eyelashes began to get heavy and quickly froze together.

Anything that happened for the next few hours is pure hearsay. The temperature in the open wind [illegible]

Two hours and a whole lifetime later, we drew into Brämnskär, as strange a [illegible] group as the Brämnskärians had ever seen. Our face scarves were white and stiff with frozen breath. The horses were frosted from [illegible] to stern. Even Kurt and Lindell seemed to have shrunk a little with the cold.

After Brämnskär, island by island, in short runs of an hour or so each, we eventually reached Pensar (pages 242, 260).

Pensar, the Island with a "Summit"

Girt by sea cliffs [illegible] with luxurious vegetation [illegible] with evergreens [illegible] It [illegible] which [illegible] dramatic view of neighboring islands for miles around. It is one of the few islands with sufficient altitude (about [illegible] feet) to boast a summit.

[illegible] was formerly a summer [illegible] unit of the Civil [illegible] mentioned volunteer organization which [illegible] in Finland as a form of citizen militia.

Children Ski Over the Roof of Their Home in Kuopsamo

[illegible]

In a Fisherman's Cottage on Bronnskär, Housewives Toil as Have Their Mothers for Generations

[illegible]

For two weeks each year members would spend their holidays in gunnery practice, seamanship, and barrack life amid a resortlike atmosphere where they could also swim, sail, and train physically for whatever national service they were asked to perform.

Serving them as cooks, canteen workers, and nurses were the women of the Lotta Svärd, their feminine auxiliary.

Because of political inferences (the Civic Guard was an outgrowth of the White Guard of 1918, formed to fight communism), both organizations had been dissolved by the 1944 armistice with Russia.

The island was bought subsequently by a private company which operates the huge lime quarry near Pargas. Today, in summertime, it is a resort camp for the company's workers. In winter, a number of the buildings are occupied [illegible] who commute here in order to reach each day the herring banks to the south.

Worst Winter of an Icy Land

The day we arrived at Pensar happened to be the coldest day of February, in a year when all Scandinavia and Finland were suffering their worst winter in decades!

The situation was now out of hand. The horses would have to be sent back. There was not sufficient feed for them at Pensar to risk waiting for the cold spell to break. And since no three freshmen could stand the open ride back to Visom, Hodell would have to return alone.

Even he was slightly nervous as he lashed the sleighs together that morning and accepted for the first time the offer of extra gear, including the mirror of my vanity case to check his own face for frostbite. He made the trip back, we later learned, without serious effect, but it had been an extreme experience even for him. Meanwhile we were to wait developments, if any, at Pensar.

A family of four brothers and their sister had charge of the resort. They put us up in the former Lotta barracks and fed us well.

We had planned to travel from here to the seine-fishing grounds to the south, but, with no transportation, we were immobilized. We could not ask the fishermen to take us along and then wait for them all day on the ice. Not us.

We could only wonder about the island, watching the brothers working on the island boats, going to the village for milk, and climbing to the top of the hill to see if there was anything coming this way. There never was. Perhaps spring would bring a change?

There we were, stranded in the middle of the Turku archipelago, surrounded by ice, cut off from civilization.

So we called a cab.

It was Jerry who looked up from a book one night and tossed off this facetious suggestion. To our astonishment one of the brothers said, "We could try," and put in a call to Pargas. To our further surprise, he found a driver who, for a nominal sum, was willing to risk his car across the ice and come for us.

It was not an unheard-of thing. Cars do ply between the islands over the ice, but, cold as it was, it was still too soon after the final freeze to expect one to come this far out (page 243).

Seine Fishing for Baltic Herring

The next day in a shiny Chevrolet sedan with heater, we headed for the seine-fishing grounds. The car followed the tracks of the fishers' sleighs and some five miles southeast pulled up to one of the busiest scenes in the fishing industry.

Seine fishing for Baltic herring is a year-round occupation in the archipelago, varying only by season, as the herring move from one bank to another, and by method of seining. Both free-water and ice seining are highly skilled operations.

The Pensar fishermen made up a typical "team." Under a head man, known as the "seine king," were 19 men and two women, each with his, or her, special job to perform. The "king" is in complete authority, making the original test to determine how the undersurface currents (and therefore the herring) are running, deciding how the net shall be placed, and ruling with heavy hand, and voice, over the workers.

Every man knows his job and moves almost silently from one phase of the operation to another. Hard luck if he doesn't, he makes one mistake and is replaced. There is no time to be lost in the brief daylight hours, with temperatures at zero or below.

When the area has been picked to cast the giant net, a specialized architecture begins on the ice. Bordering a pear-shaped area of nearly a mile in length and about 1,310 feet at the broad base, are cut dozens of precise holes, spaced about 15 feet apart and measuring two or three feet in diameter. At the base end where the net is inserted and at the neck where the haul is drawn, are bigger openings of 8 to 12 feet. When the course is laid out, two long (317 feet) "needles," made from slender pine trees lashed together, are run into the base opening in opposite directions to begin the threading process (page 254).

The "threads" or lead lines are carried to

Sleighing at Sea Is Fun on a Sunny Day

[illegible]

[illegible] and pull it through.

[illegible] to this Jupiter Line is a [illegible] [illegible]

[illegible]

A 4-hour Haul Begins

[illegible] which with its [illegible] [illegible] here measured 1,500 by [illegible] [illegible] sinks through [illegible] begun.

[illegible] to the [illegible] where the [illegible]

[illegible]

When [illegible] have been [illegible] [illegible] special [illegible] ready [illegible] the great [illegible] time up in [illegible] weather [illegible]

Then with [illegible] the [illegible] [illegible] to

The Seine Kids Does the Seemingly Impossible Sets His Giant Net under the Ice

[illegible] a pear-shaped area nearly a mile in length the boring fishermen and his team cut these openings 5 feet apart in the 4-foot-thick frozen surface. Then with the instruments shown, spruce pole "needles" are pushed under the ice from hole to hole, thereafter a rope for the [illegible]

stages, stamping their spikes into the ice and [illegible] a dreadnought chart to keep in [illegible] two. Trot by foot [illegible] and piles up on the waiting sleds [illegible]

When a [illegible] to receive the next installment.

Not a man or woman in this scene was with[illegible] stringly active job. The women were [illegible] sleds arranging the impounding nets. [illegible] cleaning the needles, untangling the lines, harnessing the horses for the next move.

[illegible] from one end of [illegible] to the other, and L, slipping on [illegible] feet are, went racing after him [illegible] his gloves while he worked and to [illegible]

[illegible] sack drew nearer, thousands of small fish caught in the folds of the seine [illegible] and were [illegible] smooth stream. Then the [illegible] the sack reached [illegible] a seething frenzy. [illegible] mottled, silver and gray flashing madly in tableaus of separate life struggles.

Scooped up in small nets, the tiny fish were dumped into a cart to be hauled to a [illegible] near the weighing scales. Here they were [illegible] to be weighing in a [illegible]

A good day's haul on an operation of this size averages around 8,000 pounds. When fishing teams use the same area again, they

Lower Through Pressure Holes, 115-foot Sprigs "Needles" Begin Their Stitch Work under the Blanket of Ice

[illegible]

As the Heavy Seine Rope Reaches Every Fish Hole It Is Drawn and Held by a Horse-turned Winch

[illegible]

At the End of the Stage Comes the Final Harvest Hour Is Withdrawn

[illegible]

Pulling in Perfect Rhythm, Fishermen Slowly Draw the Two Long Nets to the Same Landing Hole at the Neck of the Course

Around the Cuoppical Brick Stove Socks and Boots Are Hung to Dry

[illegible]

[illegible] Leaving home long before dawn, they [illegible] the first stage of their working day [illegible] Denver. Small wonder they [illegible] Sometimes seems to dull or [illegible] was more than he seems to [illegible] cold.

Near [illegible] slipped into the ice water as the heavy [illegible] was pulled in this way. [illegible] It was an [illegible] the [illegible] had to [illegible] bun homes. They could remember [illegible] cream lies; they knew their ice [illegible]

We [illegible] week [illegible] Herculean task [illegible]

A Sunny Trip Across the Ice

It had taken us several days by [illegible] to complete [illegible] through [illegible] temperature. It took us [illegible] to [illegible] We [illegible] was with [illegible]

Mrs. Arvi Tuominen Leaves with Her Family of Eight on a 12-by-12 Arrow

[illegible] and 1944 armistice [illegible]

[illegible] with radiant [illegible] of tree-[illegible] without collar or without mushers. [illegible] seemed warm and [illegible]. We arrived at Vaasa in the late afternoon.

We left, in the darkness, to return to Turku. [illegible]

[illegible] and [illegible] the stars or the outline of the islands, which is the usual simple procedure, was [illegible] back.

obviously worried. Every few minutes [illegible] he would jump out of the car and [illegible] into the night to check the ice or attempt to get a bearing. He kept the car door [illegible] and rode half the time on the running board to watch for an island light [illegible] life in the blind thickness that had settled over us.

[illegible] all be told us at the time. Later we learned he had kept it open for our quick escape in case of thin ice.

The heater was impotent. From time to [illegible] off a round [illegible]

No Factory or Organization in Fire and Wind Do Without Its "Shock Treatment" Bathhouse

[illegible]

This Heavy Lion Weighs 8½ Tons, or Nearly 19 Pounds

[illegible]

One Tire Gone, This Auto Goes Right On as a "Skundula"

[illegible]

Over Broken Ice Can Keep the Mail from Going Through

[illegible]

Homemade Skates Carry The'r Owner over the Frozen Main

[illegible] made from scrap steel, pine, leather and string. They an[illegible]

The Big Freeze Has Come—Boats Will Not Be Needed for a While

[illegible]

At last we [illegible] found [illegible] [illegible] eventually [illegible] We went forward [illegible]

Then suddenly he [illegible] the driver to stop short. Again he dis[illegible]. We were [illegible] And where was the [illegible]

[illegible] Kurt and the driver got out to investigate.

[illegible] We would have to hurry [illegible]

As we [illegible], Jerry remarked grimly that he'd heard about people who raced trains [illegible].

At the edge of the channel, Kurt ordered [illegible] the driver was going to [illegible] As we held our breath [illegible] wildly over the rough [illegible] We [illegible] and again [illegible] forward. The [illegible] were getting closer. It was feared [illegible] where we were [illegible].

We were no longer [illegible]. Nervous tension had taken care of that. And our nerves were [illegible] when we passed the spot [illegible] where [illegible] gone through the ice [illegible].

A few minutes later we rolled up the shore [illegible] to enjoy the security of good solid ground again.

"Stand Close—Chin Up—X-ray Won't Hurt!"

[illegible]

[illegible] store. As we crossed [illegible] [illegible] [illegible] [illegible] traveling up the frozen streets.

[illegible]

It had been [illegible] [illegible]. We had seen people [illegible] [illegible]

[illegible] and [illegible] [illegible]

From the [illegible] of England to the [illegible] of the [illegible], we had seen men working with courage and energy to overcome the problems which confronted them. With [illegible] [illegible] their homes, and their [illegible] [illegible]

There is [illegible] in this little [illegible]. It is [illegible] [illegible] with spirit. And [illegible].

Men, Moose, and Mink of Northwest Angle

By William H. Nicholas

With Illustrations by Staff Photographer J. Baylor Roberts

BENJAMIN Franklin, John Adams, John [illegible] had their geography when they signed the Treaty of Paris at the close of the American Revolution. They thought the source of the Mississippi River was several hundred miles north of its real origin in Lake Itasca.

As a result of their misinformation, Northwest Angle, Minnesota, is completely cut off from the rest of the State by the waters of Lake of the Woods and is hitched on by land to the Province of Manitoba.

The National Geographic Society's new Map of the United States (July, 1946) shows how this area of about 130 square miles juts out north of the long U. S.-Canadian border, which stretches along the 49th parallel.

Northwest Angle is an "enclave," in the same sense that Gibraltar, hitched on to Spain by land, is an enclave of Great Britain.

Our boundary across Lake of the Woods offered little difficulty to the treaty makers of 1783. They ran the line from its southern to its northwest tip, and everybody was satisfied. But then they decreed that the border should continue "on a due west course to the river Mississippi." Since the river didn't run that far north, such a line was ignored.

"A Mixed-up Morsel"

Not until 1925, nearly a century and a half after the Treaty of Paris, was the boundary here definitely established, although several attempts were made in the meantime on a patchwork-quilt basis (page 274).

Northwest Angle turned up as part of the United States in 1924 after an accurate survey of the area had been made.

Lady Dufferin, wife of one of Canada's early Governors General, wrote: "The Angle is a morsel of the United States mixed up with our land."

No roads lead from Manitoba into this wild, wooded area. Unless you go by air, the way to reach Northwest Angle is by boat from the Lake of the Woods port of Warroad, Minnesota (map, page 268).

So I boarded the Warroad local at Crookston for a dusty ride across northern Minnesota's flat clay-loam country. It was a warm May day, and the windows of the ornate old coach were wide open. Down in Illinois and Iowa corn had been planted, but here much of the land had just been put to the plow.

As we approached Warroad across some swampy ground, a mallard, disturbed by the clatter of the train, frantically took to the air. Scores of red-winged blackbirds rose from the bracken.

The veteran conductor looked at his watch. "We're on time," he said proudly. "Warroad, end of the line."

The village fronts on Mosseg Bay, which with Big Traverse Bay forms a large sheet of open water separating Minnesota and its Angle Township. Warroad is just a few years removed from pioneer days. Although Pierre Gaultier de Varennes de la Vérendrye, French explorer, ascended the Warroad River in 1734, and the American Fur Company had an early trading post at its mouth, the first settlers did not arrive until about 1895.

They found Jake Lochland operating a fur station near an Indian village on the north side of the river, close to the bay.

Named for Indian Warpath

Before the white man came, this spot was a terminus of a principal Indian war road, or warpath, of the Northwest. Hence its name. The old war road led from the southwest corner of Lake of the Woods to the Roseau River, thence west to the prairies beyond Red River of the North. Bedecked in their war paint, Lac la Pluie Ojibways, Sioux, and possibly Assiniboins took to the warpath here long after the Indian had ceased warlike ways in eastern States. Warroad still has a small Indian community.

As a crossroads of immigration, Warroad attracted many nationalities early in this century. I met men whose fathers came from Scandinavia, some by way of the Red River; others whose parents were Yankees arrived from the east by way of Rainy River; still others of French or Middle European descent emigrated from Canada.

Warroad still is young country. Third-generation residents are, for the most part, children. The population numbers only 1,300, but 15 families have members in the National Geographic Society.

The morning after my arrival the *Bert Steele*, Booth Fish Company boat, departed for the Angle, and I was aboard. Our ultimate objective was the northernmost post office in the 48 States, on a 50-acre island

Capt. Guy Young Can't "Pull Rank" on His Daughters—They're Captains Too

[illegible] Fort [illegible] tribe [illegible] Minnesota [illegible] thread and [illegible] sewing tubes [illegible] Page 2[illegible]

[illegible] American Point [illegible] the Angle [illegible]

Other scheduled stops were Oak and Blue Islands, timbered haunts of a handful of commercial fishermen and of summer vacationists, and also Angle Inlet, the only settlement on [illegible] Angle [illegible].

We [illegible] Warbler and Big Traverse [illegible] of the Northwest [illegible] and other explorers. These [illegible] open water belong to the United States. Although Lake of the Woods has some [illegible] islands, all but about a [illegible] are clustered [illegible] on the Canadian side. It is [illegible] as large as Lake Ontario [illegible] of the Great Lakes.

[illegible] drew farther north and approached [illegible] Island, we began to see a string of timbered [illegible] to our right. [illegible] Island [illegible] Goldthorpe, bears the [illegible] of Massacre Island. Here a tragedy was [illegible] [illegible] two centuries ago, after La Vérendrye had ventured into the lake on his fur [illegible] Western Sea.

This French Army officer established Fort St. Charles on Maurusons Island, which he [illegible] Indian's settlement on American Point [illegible] be traded with the Indians from time to [illegible] throughout his period of exploration, [illegible] included the discovery of [illegible], [illegible] western Minnesota and [illegible] of western Canada.

The winter of 1733-34 brought [illegible] and [illegible] to the men of the fort. Expected supplies from the East did not arrive. In June [illegible] sent 21 men out from the [illegible] canoes to look for the relief party.

At the close of their first day's search, the men encamped on the bleak island I could now see on our right. Here they were discovered and all 21 of them beheaded by a party of Sioux on the warpath.

Louise the Black Bears Rescue the Dog in Dennis Hanson's Adventure

[illegible]

The story is told the explorer's orders were [illegible] Father Jean Pierre Aulneau's present. [illegible] days later by the grandson of chief of the party, [illegible] who discovered the scene of the tragedy [illegible] brought the [illegible] to Fort St. Charles for burial.

Since that day few white men have set foot on Massacre Island. No passenger boats stop there. Even Indians give it a wide berth.

We visited [illegible], a little and Flag Island, where the flag of the United States waves [illegible] post office and the Oak Island customhouse. Some of our [illegible] boarding [illegible], [illegible] a [illegible] boat [illegible] we [illegible].

Soon we were sailing [illegible] Massacre Island. No sign of the revolting that [illegible] was the first fur trading post in Lake of the Woods. By [illegible], when settlers came to Northwest Angle and Northeast, [illegible] the knowledge of the tragedy of the [illegible] had been lost. Its sinister [illegible] forgotten. Massacre Island was the hunting ground [illegible] Lake of the Woods— [illegible] of [illegible] Indians [illegible].

Jesuits Find Massacre Island

In 1880 [illegible] Fort St. Charles [illegible] received by a strange [illegible] dance at Fort Frances.

These Jesuit priests were solving a man's [illegible] in the village of Le Vendre. A [illegible] resident of the town approached one of them and told him that one of his relatives, a Father Aulneau, was a Jesuit priest. He added that [illegible] had been killed by savages in North America, [illegible] half [illegible]. He [illegible] the [illegible] and [illegible] of a parcel of letters [illegible] and received from Father Aulneau.

The [illegible] Lake of the Woods

What Is the Northernmost Point in the United States?

It's Northwest Angle, Minnesota. The area of [illegible] 150 square miles is an "enclave." Although part of Minnesota, the Angle is separated from the rest of the State by the waters of Lake of the Woods and is hitched by land only to Manitoba. Benjamin Franklin and the other negotiators of the Treaty of Paris, at the close of the Revolution, muffed their opportunity when they tried to fix the Canadian [illegible] boundary in the Lake of the Woods region; hence this little piece of U. S. land got mixed up with Canada (page 265).

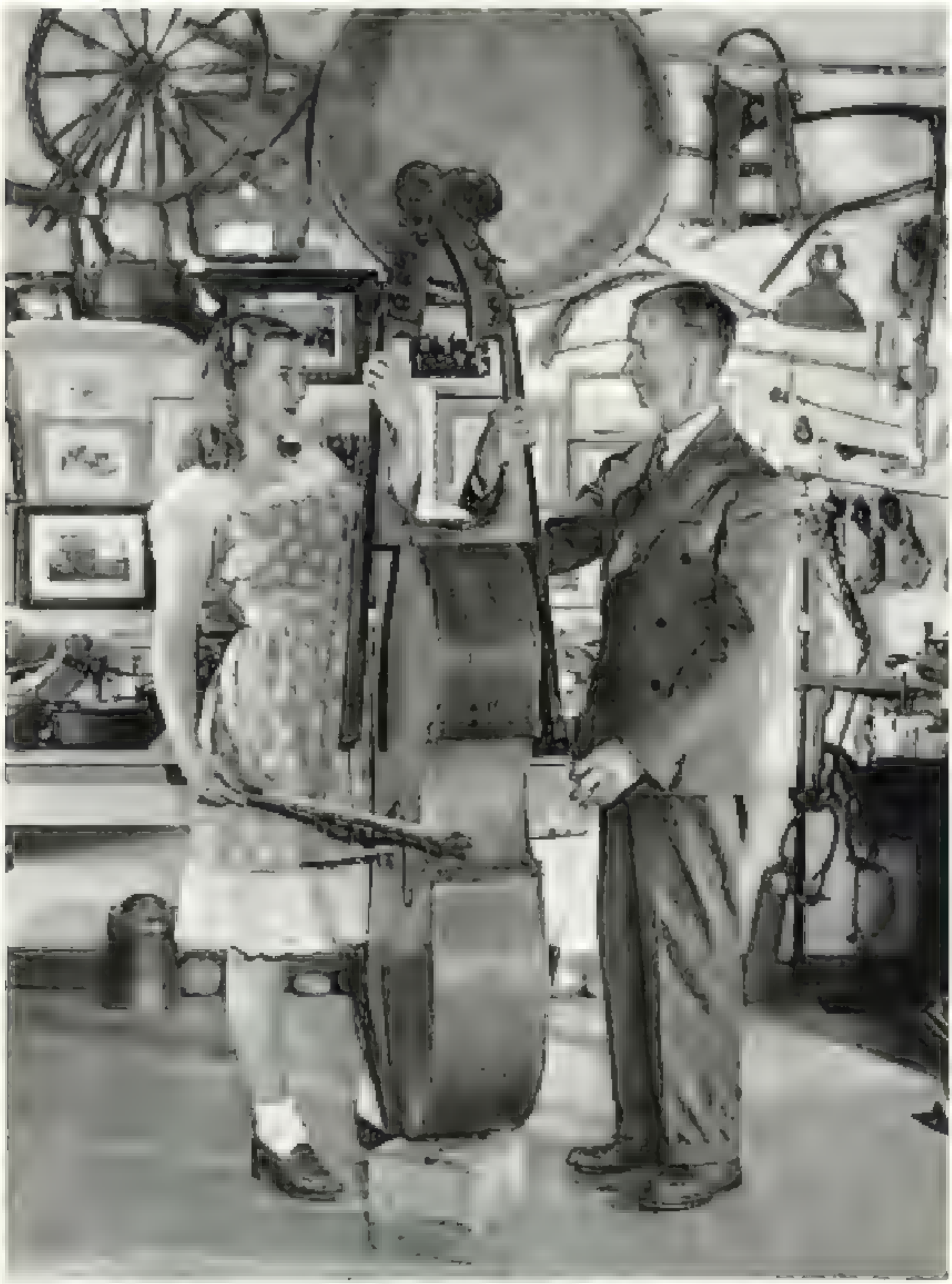
but further investigation proved that this was incorrect.

Finally, in July, 1908, an organized expedition set out from St. Boniface. Landing at American Point, the priests pitched their [illegible] altar and a fireplace, and set up their [illegible] quarters. They carefully reviewed the information which the chiefs had given in 1902. On neighboring Magnusons Island they discovered the site. Subsequent excavation revealed the remains of the 21 men who had been slain on Massacre Island.

The priests raised a mound of stones and upon it erected a wooden cross with the inscription "Fort St. Charles, erected 1732, rediscovered 1908." Then they departed, leaving the island to the loon. But the mound of stones and the cross still stand on this deserted spot in the lake. I saw them a few days later when I clambered up the rocky shore from a rickety landing and made my way across an overgrown trail to this historic spot (page 273).

As the *Bert Steele* passed Magnusons Island, American Point came into view, with its flag, its landing, and its trailing post. I disembarked and walked up the boardwalk to the tow line post. There, over the door, was a sign which read: "United States Post Office, Penasse, Minnesota. The Most Northerly P. O. in U. S. A."

Presiding over the affairs of the U. S. postal service in this isolated spot was the charming postmistress, Miss Helen Arnold, who has since been succeeded by Mrs. Fran Cole (page 270).



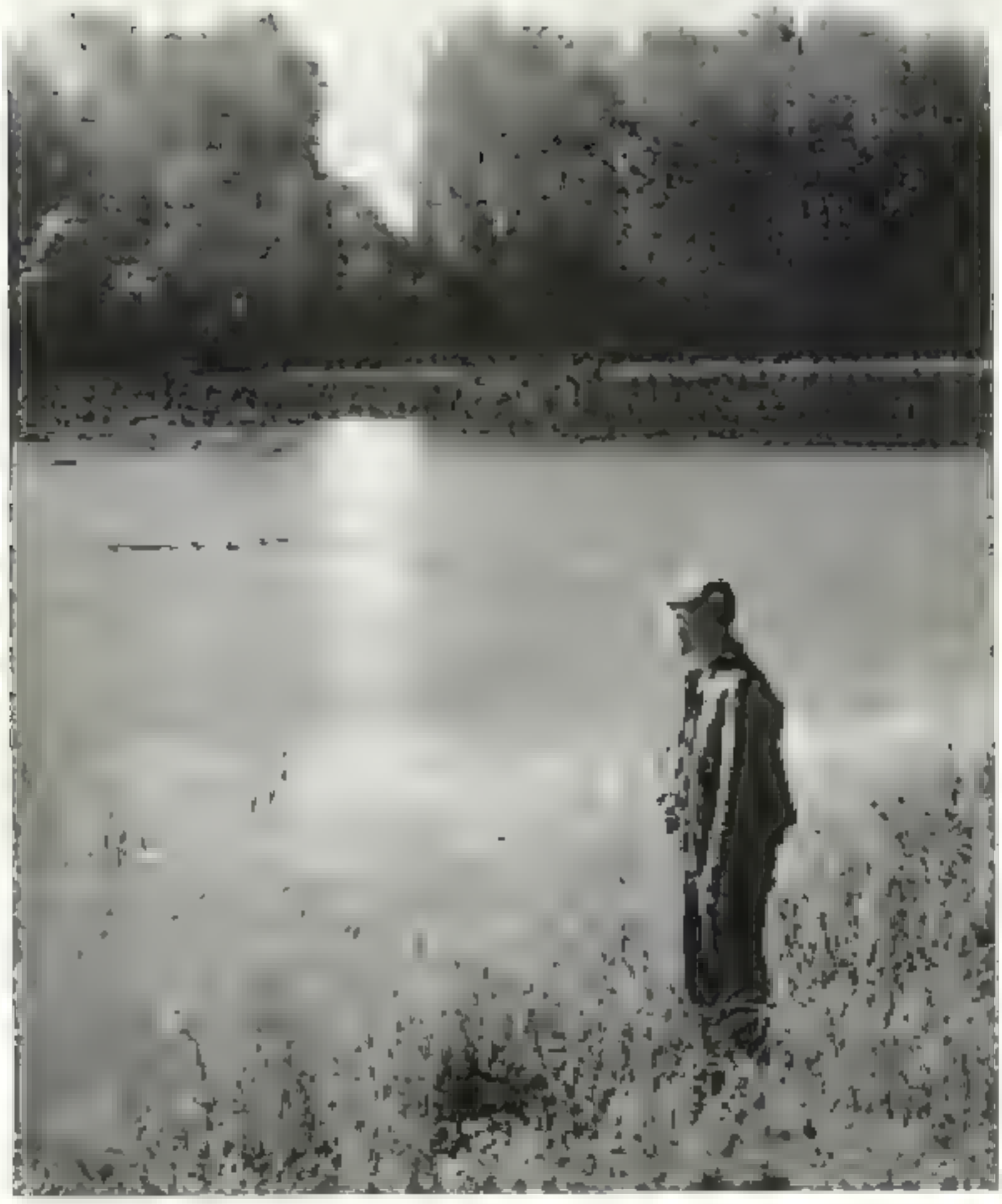
Two Can Play Different Tunes on This Double Bull Fiddle

[illegible]

Winnipeg's Pioneers, Taking the Dawson Trail from Eastern Canada, Crossed U. S. Soil Here at Harrison Creek

Lordly Moose Startled in Their Forest Hide-out Run Wildly from a Giant Canvas Plane

[illegible]



Harrison Creek Reflects the Minnesota-Manitoba Line

[illegible] in the trees lies Northwest Angle; to the right, Minnesota. [illegible] the Canadian Province and flows across the northernmost tip of the United States to reach Lake of the Woods. Trees are cleared [illegible] every ten years (page 274).

Pennsylvania is the official name of the village on American Point. It did not take long for me to reconnoiter the entire settlement. The post, a hotel, a storage warehouse, half a dozen cabins sheltering in the woods close to the water's edge, and several hundred martins in a dozen man-made houses atop tall poles—that was all.

[illegible] I stood on a landing and looked out over unruffled Lake of the Woods. On the far side lay Canada, fringed to the water's edge with hemlock, [illegible] and [illegible].

I knew that moose, deer, mink, and muskrat [illegible] in these [illegible] swam beneath the lake's surface, that in the fall migratory waterfowl swarmed to the wild rice swamplands. Yet now there was only an overpowering sense of peacefulness and calm.

I could understand why Alexander [illegible], whom I met at American Point, and who came to Lake of the Woods from New York City 15 years ago to [illegible] from illness, never wanted to [illegible] back East.

Fortunately for me, [illegible] American Point coincident with that of Bill Cameron, son of Selby and a youthful discharged veteran of the Royal Canadian Air Force. After his long absence Cameron was [illegible] to renew old friendships in the Angle area and readily consented to accompany me on jaunts.

In an outboard motorboat we made our excursions from American [illegible] Bay [illegible] Lake and [illegible] official guide, but Bill [illegible]. He was [illegible].

We sped over the lake, veered to our [illegible] we saw the shoreline of Northwest Angle. [illegible] the foliage. [illegible] the entrance to Pine Creek.

We changed course slightly, and almost before I knew it we were in the mouth of the creek, flanked [illegible] by acres of reeds and rushes.

Now the log cabins and small houses of Angle [illegible] a few [illegible] descript piers, then some Shorthorn cattle grazing along the river bank.

Plane Brings Mail in Winter

At the landing we were greeted by half a [illegible] man who [illegible] a discarded outboard motor which [illegible]

[illegible] A "Kicker" to these [illegible]

[illegible] Angle [illegible] during the winter months when the lake freezes up and [illegible] with Warroad [illegible]. Now Ruby Billberg, an Angle [illegible] owns a small plane (page 278). He brings in [illegible] necessary all winter by air, and any other [illegible], such as medical supplies, can be flown in when [illegible].

I met Frank Crbek [illegible] small [illegible] Angle [illegible] the [illegible] United States. He [illegible] from which [illegible] years [illegible].

[illegible] "[illegible]" [illegible] Iowa and Nebraska [illegible] years ago. I saw several [illegible] passing [illegible] farm income is [illegible] mink and muskrat pelts in winter and [illegible] in summer. In the winter of [illegible] Angle residents, [illegible] relation in this [illegible] area.

In one jaunt we pushed far up Northwest Angle [illegible] toward the tip of the lake [illegible] Harrison [illegible].

[illegible] impassable [illegible] reeds and rushes [illegible] channels permit [illegible].

As the [illegible] wood ducks [illegible] and winged their way upstream.

Up Bear Creek stands the cabin of Raymond Oberbrunn, guide in summer, trapper and farmer in winter. When war broke out [illegible] Engineers and spent four years [illegible]. Yet as soon as he was released from the Army he headed back to [illegible] Northwest Angle, [illegible] and sticker, and settled down to the [illegible] life he likes best.

On Poplar Island we stopped at a landing built of rock [illegible] and situated on [illegible] ruins, once the dwelling of a homesteader who had moved away. The building stood [illegible] little [illegible] fellow [illegible].

I thank [illegible] "[illegible] here," [illegible]

Here Fort St. Charles Once Stood

Built in 1732 by the [illegible] La Verendrye [illegible] Fort St. Charles [illegible]

Photo of Cast from Marks the Angle Boundary

[illegible] the Revolutionary War.

[illegible] mortal Fernyard and followed wagon tracks for a few hundred yards. We came to an open stretch some [illegible] feet wide, extending north and south as far as we could see. At an early date this passageway had been hacked out of the forest to mark the boundary running [illegible] Northwest Angle and Minnesota. Some 10 years ago [illegible] (page 272)

An Auto That Runs Only in Winter

We returned to the Inlet and headed northwest [illegible] Harrison Creek, which takes a zigzag course and crosses the boundary a few hundred yards from a month [illegible] crossed the [illegible], it took on a [illegible] with a clumsy waddle. Making for the [illegible] tree, it scramble[illegible] [illegible] as with an [illegible] a few hundred.

We [illegible] a fenced field and soon came upon [illegible] wagon-wheel ruts [illegible] of the Dawson Trail which extended almost due east and west.

In the middle of the 19th century, Canada was anxious to find a cross-country route for its immigrants to Manitoba and the Far West.

Finally, S. J. Dawson, a Glengarry Scotsman who had been in the Canadian West on several expeditions, planned this [illegible] and-and-water route from Lake Superior to Winnipeg.

Near the [illegible] I [illegible] [illegible] from Gold [illegible]

"It belongs to Emma Goulette," [illegible] [illegible] way as the [illegible] "It [illegible] at the [illegible] leave on the ice when the lake freezes up."

Around a bend in the creek we came upon the Goulette house [illegible] the upper [illegible] old landing, to which we trod.

Dawson Trail Remnants

Now [illegible] point for [illegible] and [illegible] would [illegible] the old Dawson Trail.

We approached the log house which for forty years was the homestead of the Goulette family. Now it has been abandoned. The Goulettes have retired and moved to Keewatin, Canada, on the northern shore of the lake. It was a sturdy, comfortable structure, [illegible]

In the [illegible] why a fat porcupine [illegible] [illegible]

[illegible] Lake Superior to Thunder Bay. Then they went west by wagon to Shebandowan Lake. Here Indian guides put them in canoes and led them by a series of lakes and rivers into Lake of the Woods at its southern tip.

Steam tugs towed them across Lake of the Woods to Northwest Angle Inlet, and up the inlet to Harrison Creek (page 280). Here they stepped from their boats on soil of the United States. At the landing they changed into Red River oxcarts and buckboards, or mounted saddlehorses, to ride over the Dawson Trail for more than 100 miles to Fort Garry (now Winnipeg).

Lady Dufferin described the road feelingly. She wrote:

"We had . . . a road made with rough-hewn trees. When first made, this sort of [illegible] bridge is not [illegible] but when [illegible] has worn rattlers in it, [illegible] the [illegible] horses [illegible] it is not to be described!

"When we had been [illegible] out and walked [illegible] Our whole journey was over corduroy road, and as we had to [illegible] it was very fatiguing.

"[illegible] a 'corduroy' road [illegible] an imitation of the material worn by rough little boys, and when an occasional 'cord' has broken away [illegible], which another has got loose, and turns round as the horse puts his foot on it, or when it stands up on end as the wheel touches it, the corduroy road is not pleasant to drive many miles over!"

Yet in 1869 most of a Canadian appropriation of $[illegible] was expended on the Dawson Trail. [illegible] kept [illegible] at intervals to care for travelers, but, despite the efforts made, the road soon deteriorated. The route became so unpopular it was abandoned in 1876.

One irate traveler is quoted as complaining: "When I refused to paddle on one of the boats, an Ottawa Irishman told me to go to the devil, and said that if I gave him any more back-chat, I could get off and walk to Winnipeg."

Gentle Rocking of the Canoe Sent This Papoose to Slumberland

With her mother, Mrs. [illegible] [illegible] Leland, Ontario. Ojibway women are expert mink pelters. Aided by two Indian men, but doing the most delicate part of the [illegible] they [illegible] remove the flesh from 300 to 400 pelts a day (page [illegible])

Angle Animals

Human habitations in Angle Township are concentrated along the northern shore. The

Captain Young Brings the Mail to Pequasse, Northernmost U. S. Post Office

Mr. [illegible] in [illegible] Captain of the [illegible] S. [illegible] [illegible] Mail [illegible] Pequasse [illegible] Lake [illegible] the Most [illegible] The [illegible]

"Be It Ever So Humble, There's No Place Like Home"

[illegible]

rest of the area is inhabited by moose, deer, [illegible], and muskrats, of which the latter are by far the most numerous.

As [illegible] the muskrats build roughly conical lodges of [illegible] and mud in swampy land. These houses often rise to a height of more than four feet above water level. Underwater passages lead to the [illegible] [illegible] Sometimes [illegible] [illegible] more [illegible] to [illegible] vegetation.

[illegible] winter Northwest Angle yields several thousand pelts, which are [illegible] [illegible].

More profitable but less numerous are the sleek, restless little members of the weasel family, at home on land or in the water. [illegible] they do not dwell in colonies but roam widely and live wherever they find convenient shelter, sometimes in abandoned muskrat houses.

Northwest Angle's moose colony is well guarded by State game wardens, and Angle residents eagerly look forward to the day when a moose hunting season will be declared. The Minnesota Department of

Saturday Night Comes to the Hilberg Cabin at Angle Inlet

[illegible]

Conservation recently completed an aerial census of the Angle's moose population and concluded that it now numbers 42—not enough to permit hunting.

About 60 percent of the area contains hardwood and brushy land, which moose prefer as their home. For three hours the census takers cruised over this section, routing the big fellows from their retreats by the noise of the plane's motor (page 271).

Counting the numerous deer from a plane was difficult. But the massive moose, seen against a snow background in brush, popple, and open bog habitat, were spotted with comparative ease.

Bill Cameron and I made one jaunt into Canadian waters to visit Potts Camp, Mr. Selby's fishing and hunting lodge on Monument Bay, about five miles from American Point.

En route we threaded our way among a score of the thousands of little islands that intervene between the American side of the lake and Kenora, its Canadian port on the northern shore.

Potts Camp is a cluster of modern buildings—a boathouse, store and dining room, individual cottages, bathhouse, service cabin—clustered about a timber enclosed greensward. To it come muskellunge fishermen in summer and dark and deer hunters in winter.

Muskie Tries to Catch Indian

Muskellunge weighing more than 50 pounds have been pulled out of Lake of the Woods. One muskie, in turn, nearly pulled one of the fishermen in last summer. I met the boy and heard his story.

The near victim was little Ronald Sandy, younger brother of our Indian guide. He was fishing from a slight embankment at Potts Camp when a big muskie struck viciously and began a furious battle.

Ronald didn't want to let the prize go, so he clung gamely to the line and yelled for help. A carpenter working on a near-by cottage came to the rescue just in time, for the embattled fish had pulled the little Indian knee-deep into the water.

Muskellunge, whose Indian name has been spelled at least 24 different ways, are the most celebrated fighters of the pickerel family.

I had no opportunity to try my luck with them, but I did go fishing for wall-eyed pike, or yellow pike-perch, with a group of enthusiastic Warroad anglers. We took some beauties, weighing close to five pounds, and lost as many more. Wall-eyed pike is a splendid food fish.

Lake of the Woods also boasts northern pike, small-mouth bass, and trout, the latter sometimes reaching 40 pounds each. Highly esteemed whitefish also abound here once, but today nearly all have disappeared.

Ready to return from American Point, I stood with my luggage on the little landing one noon and watched the approach of the U. S. mail boat *Rendale*, which was to take me back to Warroad (page 284).

Grizzled Capt. Fay Young, Lake of the Woods skipper for 27 years, edged his 62-footer up to the landing. Youthful and fair Capt. Kay Young, the veteran pilot's daughter and a licensed captain in her own right, jumped nimbly to the dock and made fast the craft. Once more they had brought the mail to Uncle Sam's northernmost post office.

A third captain in the family, daughter Kay Young, was not aboard, but she, too, is a qualified lake skipper (page 280).

Crates of fish were put aboard, and we headed over to Angle Inlet. Here several passengers joined us, including one couple from Iowa who had tried their luck in the lonely north and had decided to go back where the tall corn grows. The isolation of the Angle was not to their liking.

Captain Young, in addition to carrying mail and supplies to the Angle country, also acts as confidential messenger, special agent, and shopping service for the housewives of the area. As we departed, he promised to look after a number of feminine wishes in Warroad.

"I do a little of everything," he said. "I match ribbon and thread, try to buy sugar and any other little items they want."

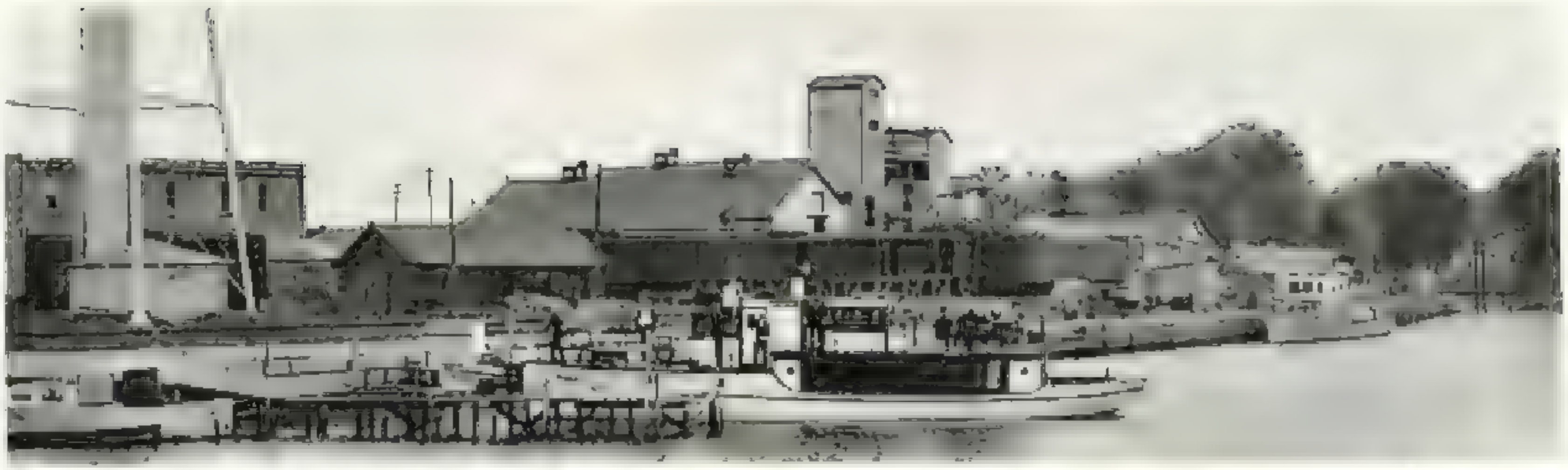
In his 27 years on the Lake, Captain Young has learned to know every man, woman, and child of the Angle territory. Like any veteran skipper, he had tales to tell.

Perils of Woods and City

One was an experience of some years ago, which had a typical O. Henry ending.

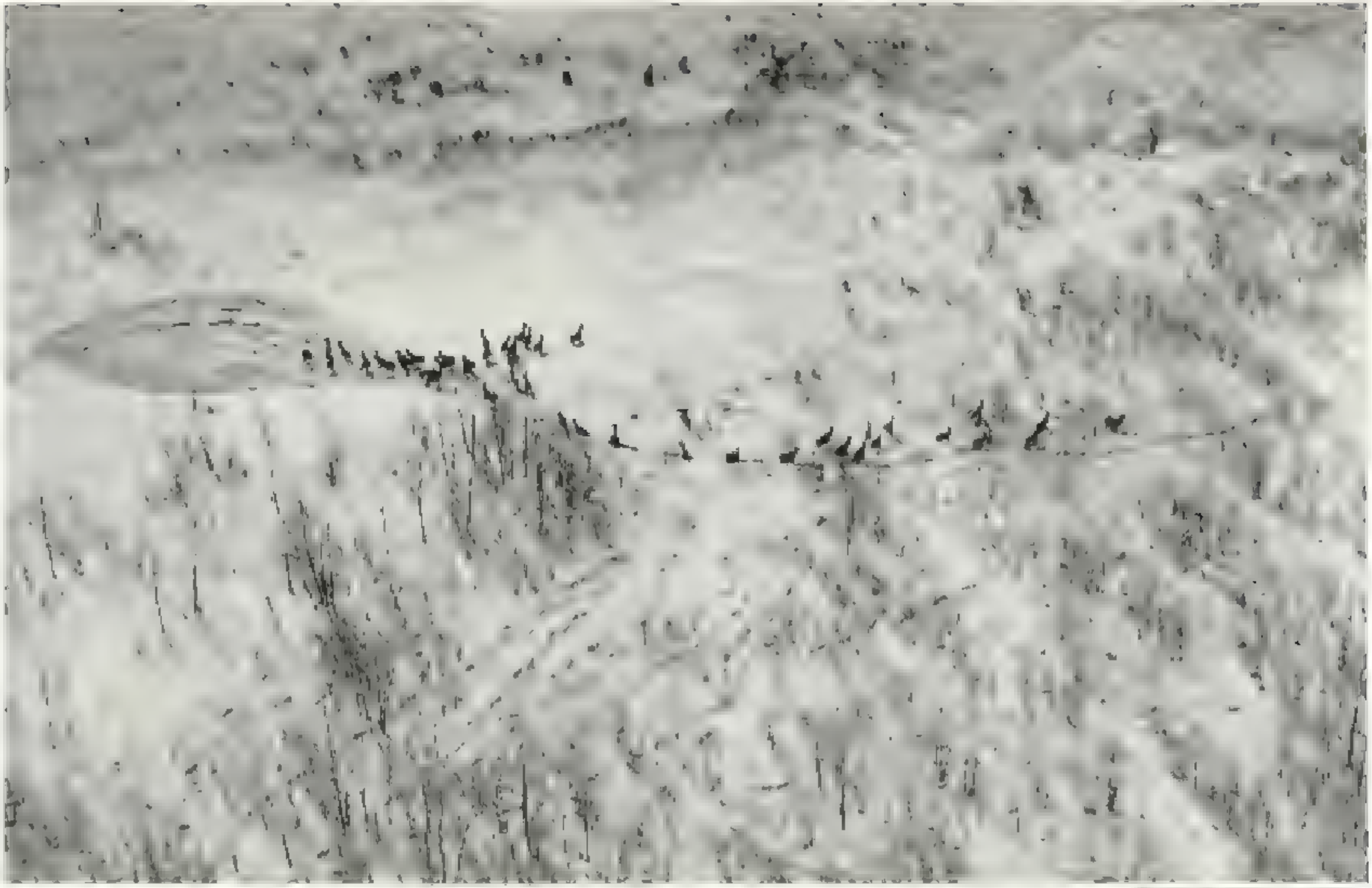
"It was winter, and the lake had frozen over," he said. "Another man and I were walking over the ice, heading from Warroad upward Oak Island. When we started out in the morning, the sun was shining brightly, and it got warmer as we walked along. Finally we began to notice a crack in the ice, which started to open up parallel with the shore line off Buffalo Point. At first we didn't think much of it, but suddenly we realized that it was serious, and we headed for shore.

"We got to the Point and stopped to rest. As we did, we looked out over the ice, and to our surprise we saw a man in the distance, also heading for Oak Island and taking along with him a team of dogs pulling a sled



Lynch Warehouse Docks, Mail, Freight, and Fish Boats Put Out for Northwest Angle on Anderson Point on Lake of the Woods

Rendered Mink Have Dropped Lives in Individual Cages until Their Pelts Are Ready For a Fur Coat



Startled by the Roar of the Plane's Motor, Wild Elk Circle in the Snow, Then Dash for Shelter

Vivian Cormacke's Pump Sounds Hick to Summant Snowdrifts

[illegible] the airplane age, Arctic Inlet was [illegible] Now it [illegible] water [illegible] board motorboat for summer use (pages 275, 277).

"The man wasn't very grateful to me even though my friend had taken a big risk in [illegible] and carried him ashore. Now that I look back upon it, I wonder whether it was worth while. For that man went to Moosonee [illegible] months later and was killed [illegible] in an airplane crash.

We reached Warroad, and Captain Young helped us up the bank and [illegible] the [illegible] [illegible] to the passengers [illegible] one by one, then [illegible] and [illegible] over our [illegible].

Don't you pay any attention to collecting [illegible] [illegible]

"Don't have to, he said. "They always [illegible] sometimes, if they don't [illegible] enough money, they just hold [illegible] on their next trip.

But don't you [illegible] money this way?" I asked him.

Of course not, said the captain. "Although, remember [illegible] now that you [illegible], I will extend two dollars [illegible] an Indian [illegible] years ago. A week later, before he got around to paying it, he died. I guess I never will get that two dollars. His relatives probably have spent all his money by this time.

Before my departure from Warroad, I met E. L. (Sonny) Joyce, the first mink raiser in the Warroad area. He is a Marine Corps veteran of World War I and has grown mink [illegible] years.

Today, 23 percent of the mink commercially grown for pelts in the State of Minnesota comes from farms along the southern shore of Lake of the Woods.

"You probably didn't see a live wild mink at the time you were up at Northwest Arctic Inlet," Joyce said. "How would you like to see a pair of them at one time?

"He paid no attention to the crack in the ice, which was now so big that we could see open water between him and us. Finally he realized that he was on a [illegible] and [illegible] more [illegible].

In another hour or so he probably would have floated out to the center of the Lake and the ice would have broken up, and he would have drowned. We tried to signal to him, but he didn't pay any attention. He just kept on in the direction of Oak Island.

"Well, we found a [illegible] and my companion [illegible] that not continued him he was in danger and persuaded him to come ashore. The dogs were rescued, too. We all had a long, hard walk back to Warroad.

So I [illegible] to his ranch a mile from town.

Caprices of the Moody Mink

A quarter century of experience has given Joyce an uncanny insight into the temperament of a mink. His pens or boxes, most of them [illegible] long, narrow, and [illegible] ventilated runs, are off the ground. They occupy some [illegible] carefully fenced ground. Two dogs which [illegible] keep [illegible] well [illegible] (page 281).

He showed me his [illegible] boxes, each housing a mother and her young—usually two or three to the litter in captivity.

"A mink makes a good mother," Joyce says. "She keeps her babies warm and dry, which is most important. We move our [illegible] and when we [illegible]. Never, [illegible] as I recall, has it failed to [illegible] the young ones [illegible]."

The youngsters are lonesome without their mothers [illegible] attention of the first days [illegible]. When night comes, they just continue to sit there and refuse to enter the sheltered boxes at the end. If it rains, they just sit there [illegible] their chances of a [illegible], which is also true.

Diet a Problem, Too

I'll never forget the year we took all pups from their mothers and put them in individual pens. During the night a storm broke without warning. There they sat in the rain. They were soaked through before Mrs. Joyce and I could reach them. We brought them into the house, [illegible] and stretched them out in front of it, more dead than alive. Then we went back to bed.

A few hours later we were awakened by a crash. One of the plates along the dining-room plate rail had dropped. Then another fell, and another. We rushed out to investigate. The young mink had dried out and revived. They were climbing and running all over the house. Not a plate on the rail escaped. Until you have tried to capture [illegible] young mink all loose at once in your house in the middle of the night you have no idea how [illegible] it can be.

[illegible] is a major problem in raising mink, Joyce pointed out. [illegible]

Shorty Joyce Keeps a Wary Eye on Two Valuable Mink

The [illegible] at left is a Royal Kohinoor, or black cross, whose pelt is [illegible] The [illegible] Both [illegible] Joyce, a World War I veteran of the U. S. Marine [illegible]

The *Resolute* Threads Her Way among Hundreds of Islands en Route to Kenora, Ontario

No one knows exactly how many islands dot Lake of the Woods. Best estimate is approximately [illegible]

comes to [illegible] their [illegible] [illegible] with [illegible] [illegible] [illegible] [illegible]

[illegible] up over half of a farm mink's [illegible]. [illegible] frozen jack rabbits [illegible] the rest of the bill of fare. But [illegible]

[illegible]

We stopped before one box housing a [illegible]

[illegible] doesn't have [illegible] think he [illegible] [illegible]

When [illegible] Chippewa [illegible] When the animals are [illegible] the Indians take the [illegible] home to [illegible] [illegible] the fat in the middle [illegible] takes the Indian woman's [illegible]

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[illegible] magazine [illegible] All receipts are [illegible] the Magazine itself or expended directly to [illegible]

[illegible] and photographs are desired. For material [illegible]

[illegible]

The Society's notable expeditions have pushed back the historic horizons of the southwestern United States to a period nearly eight centuries before Columbus crossed the Atlantic. By dating the ruins of the [illegible] communal dwellings in that region, The Society's researches solved secrets that had puzzled historians for [illegible]

In Mexico, The Society and the Smithsonian Institution, January 16, 1939, discovered the oldest [illegible] in the Americas for which we have a date. [illegible] engraved in Mayan characters with a date [illegible] means November 4, 291 B. C. (Spinden Correlation). It antedates by 200 years anything heretofore dated in America, and reveals a great center of early American culture, previously unknown.

[illegible] Air Corps, the world's largest balloon, Explorer II, ascended to the world altitude record of 72,395 feet [illegible]

The National Geographic Society-U. S. Navy Expedition [illegible]

[illegible] the Society cooperated with Dr. William Beebe in deep-sea explorations off Bermuda, during which a world record depth of 3,028 feet was attained.

[illegible]

[illegible] Society and the Carnegie Institution of [illegible]

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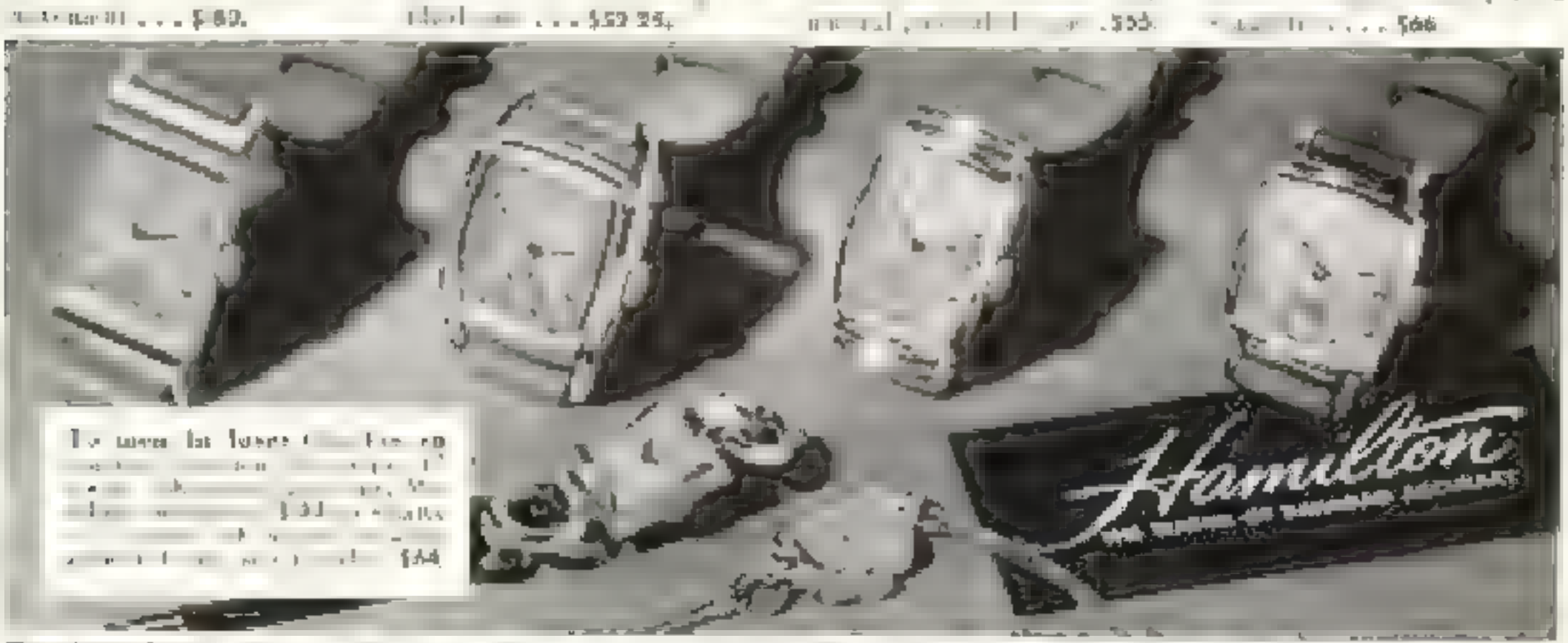
DAD. [illegible] . . . $55.

SON. [illegible] . . . $66.



[illegible]

Where Does the Iron Horse Get its Oats?

YOUR RAILROADS need investment dollars just as much as a racehorse needs oats.

Investment dollars [illegible] research and invention, improvements in plant, equipment and service—the railroads' life and future vitality.

But to attract these investment dollars and to finance improvements needed to serve you better, the railroads must have reasonable earnings.

Most folks think 6% is not too much to earn. Not reasonable. Last year, however, railroads as a whole earned an average of only 2¼% on their net investment. Many railroads actually lost money. And this year, even though hauling a record peacetime traffic, your railroads will probably average only about 3[illegible]

Why are your railroads faced with this situation? That's simple. Since 1939 wages are up more than 50%, [illegible] materials and supplies up 60%. At the same time, the average charge for hauling a ton of freight a mile is less than 15% above 1939! Railroads are still hauling freight for less, on the average, than any other comparable transportation in the world.

Any business should earn at least 6% if it is to continue as a progressive, self-supporting enterprise. The railroads are no exception.

Doesn't [illegible] strike you as fair in principle... sound in practice... and in your own best interest in the long run? [illegible]

AMERICAN RAILROADS

THE NATION'S BASIC TRANSPORTATION

Sheer Enchantment... now the magic of natural and true tone can be yours in this superb FM-AM radio-phonograph

Now you can enjoy the finest record reproduction — the most thrilling sound you've ever known. These are yours in Musaphonic — one of the great musical instruments of all time.

Familiar records never seemed so perfect before. You'll listen, enthralled, as the amazing G-E Electronic Reproducer reveals new and unsuspected beauty. You'll delight in the [illegible] natural color tone whether you play recordings, [illegible] you'll find, at last, flawless reproduction virtually free from the annoyance of hum, hiss, plop and other noises.

The Musaphonic [illegible] rare lovelinesses of genuine [illegible] with the unique charm of the best contemporary design. Your dealer will be glad to show you other Musaphonics [illegible] precious cabinets reflect the [illegible] of Sheraton, Adam, and Chippendale. Musical instruments worthy of the world's [illegible]

GENERAL ELECTRIC

RADIO-PHONOGRAPHS

General Electric Co., Electronics Park, Syracuse, N. Y.

Why some wives envy their husbands

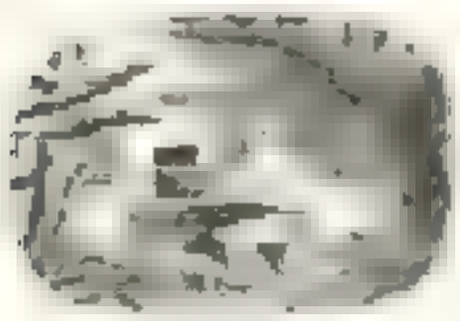
"M [illegible]

[illegible]

NEW CAR NEWS! Modern, all-room Pullman cars with many new conveniences are now in service on some railroads, now being built for others. And they give you even greater comfort and convenience as Pullman gets you where you're going safely — on dependable railroad schedules.

Go Pullman

THE SAFEST, MOST COMFORTABLE WAY OF GOING PLACES FAST!



Humidity-Proof...for protection against radio's greatest enemy!

Now Zenith's Special "Tropic Treatment"

GUARANTEES Perfect Performance

Even Under the Worst of Humid Conditions!

Every sportsman knows how humidity rots and rusts equipment. Humidity is radio's greatest enemy, too. But now you can take this new Zenith moisture-proof portable anywhere, knowing you get perfect performance where other radios fail.

Exclusive Zenith Trans-Oceanic circuits enable it to receive broadcast coast to coast and world wide short wave on 5 international bands. Just press button and tune 'em in! Plays in trains, planes, boats, cars, stations, buildings, remote areas. Magnet keeps from Zenith's exclusive Wave magnet U.S. Patents [illegible] by strong lock against luggage. Warranty on battery pack (up to 3 years) [illegible] Model 5[illegible]Y

$114.40*

NEW ZENITH RADIO TRANS-OCEANIC PORTABLE

Zenith Radio Corp., Chicago 39, Illinois

"I'D LOVE TO GO . . . BUT HAVE I ENOUGH TIME?"

Yes! THE AIRLINES GAIN YOU Time...Time...Time!

[illegible] airport and travel agency you'll see smart Americans laying on hours a day, a week. More time for fun on weekend trips or vacations [illegible] time for business [illegible] time, [illegible] time, time!

Time savings will be even greater on the airlines equipping with speedy new Martin 2-4-2 and 3-0-4 transports. [illegible] even the shortest hops, these dependable, comfortable airliners cut hours from airline schedules. Save money . . . save needless fatigue . . . save time. Fly by [illegible] Martin airliners. [illegible] Martin [illegible]

Travel or Ship by Martin Transport on These Great Airlines

[illegible]

GET THIS FREE BOOK

[illegible]

Martin AIRCRAFT

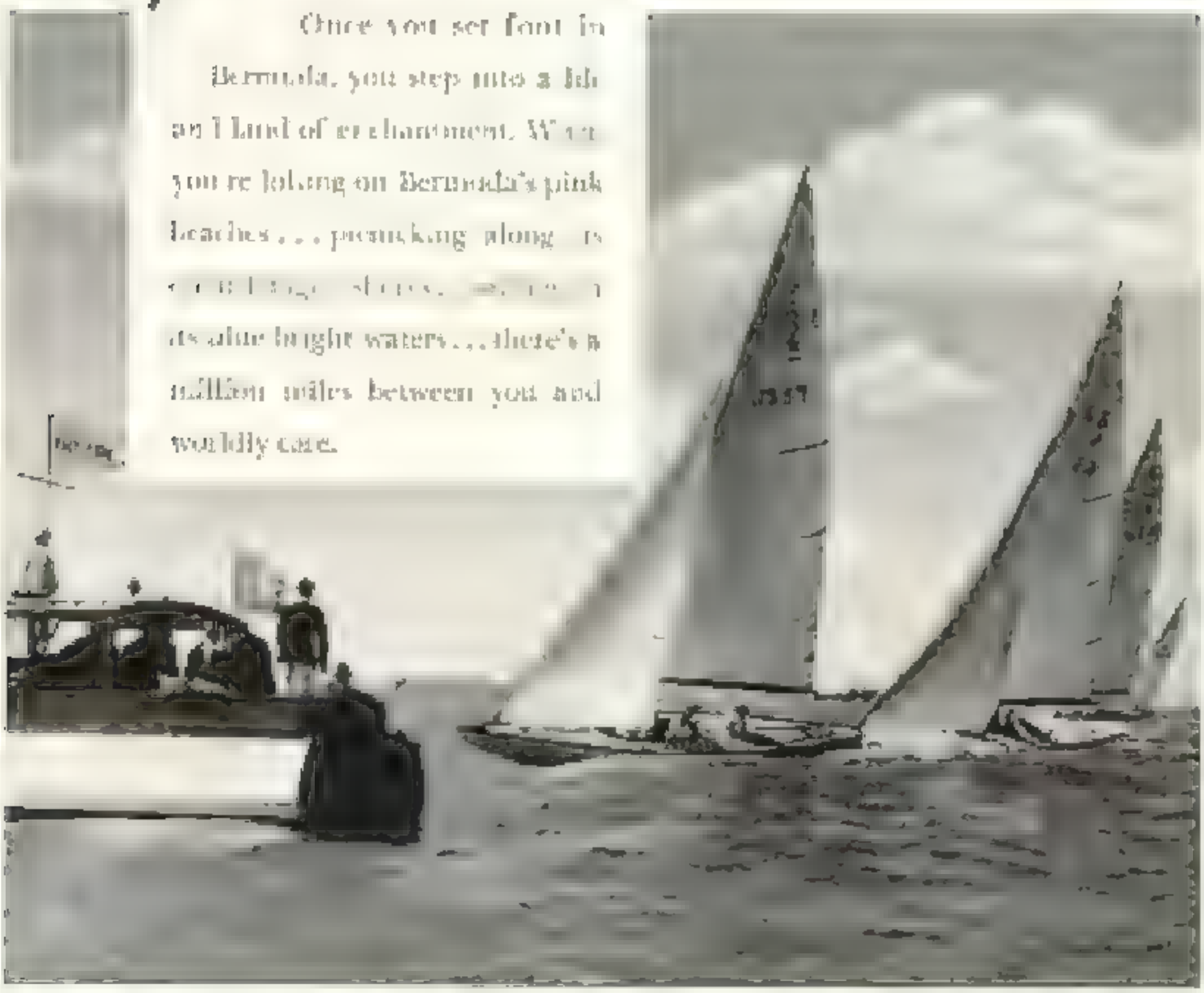
[illegible]

An International Institution

[illegible]

A Million Miles from Care!

Once you set foot in Bermuda, you step into a land of enchantment. When you're lolling on Bermuda's pink beaches . . . picnicking along its [illegible] shores . . . [illegible] its azure bright waters . . . there's a million miles between you and worldly care.



KING'S WHARF, HAMILTON HARBOUR

EVERYTHING IS BETTER IN –

Bermuda

[illegible]

RCA Miniature Tubes [illegible] of RCA [illegible] Frontier [illegible]

She shall have music wherever she goes!

[illegible] from RCA Victor Globe Trotter portable radio won't [illegible] of tube volume enough for [illegible] tiny tubes.

Miniature tubes save valuable space in small radios. Space that can be used for larger and better loudspeakers and for other features, [illegible] RCA has [illegible]

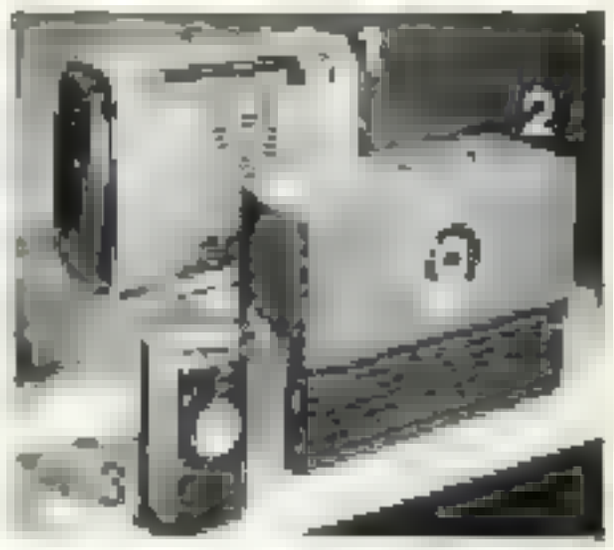
These miniature tubes were developed in RCA Laboratories, world center of radio and electronic research—and long a leader in development of electronic tubes.

At RCA Laboratories, the same research and development that produced these improved tubes keeps RCA products and services at the top in their particular fields.

When you buy a good set bearing the name RCA or RCA Victor—a radio set, television receiver, [illegible] or phonograph record—you get one of the finest products of its kind science has yet achieved.

[illegible]

RCA Experimental Tube [illegible] Radio Corporation, New York [illegible] RCA [illegible] Radio Corporation of America, [illegible]



That travelling companion [illegible] RCA Victor Globe Trotter [illegible] or battery [illegible] RCA Victor Electronic Sight & Sound [illegible] RCA Victor "Strataflex" [illegible]

RADIO CORPORATION of AMERICA

New York's "S.R.O." sign is coming down

Latest, bustling New York City was in a jam a colossal jam . . .

With its 7,800,000 population crossing bridges and tunnels—with vital transportation facilities saturated—with many subway cars needing replacement, New York needed action.

"Never mind post-war dream equipment," said New York's Board of Transportation. "We need good, proven cars with the latest improvements—based upon [illegible]."

And for that job, the Board of Transportation turned—logically—to the American Car and Foundry Company. For ever since tiny steam engines hauled Old Manhattan's first elevated trains, A.C.F. has been continuously supplying New York's vast transportation network—overhead, surface or underground—with dependable equipment.

500 new cars were ordered. 500 cars of advanced engineering . . . smoother . . . faster . . . quieter . . . with fluorescent lighting and improved ventilation. Bright, cheerful cars that are forerunners of a new era in underground transportation.

They'll be joining the thousands of other A.C.F. cars New York already operates . . . giving a comfortable daily ride to another half million citizens.

Yes, the "S.R.O." sign is coming down in New York. And A.C.F. is proud to be helping her set the pace for the nation's other great cities.

American Car and Foundry Company

The sergeant's a general—again

When Joe came home from Uncle Sam's army, he took command of another army which lines up twice a day in the barn. *Both* Joe and his army had fine war records. He's taken [illegible] war records are in the [illegible] reports.

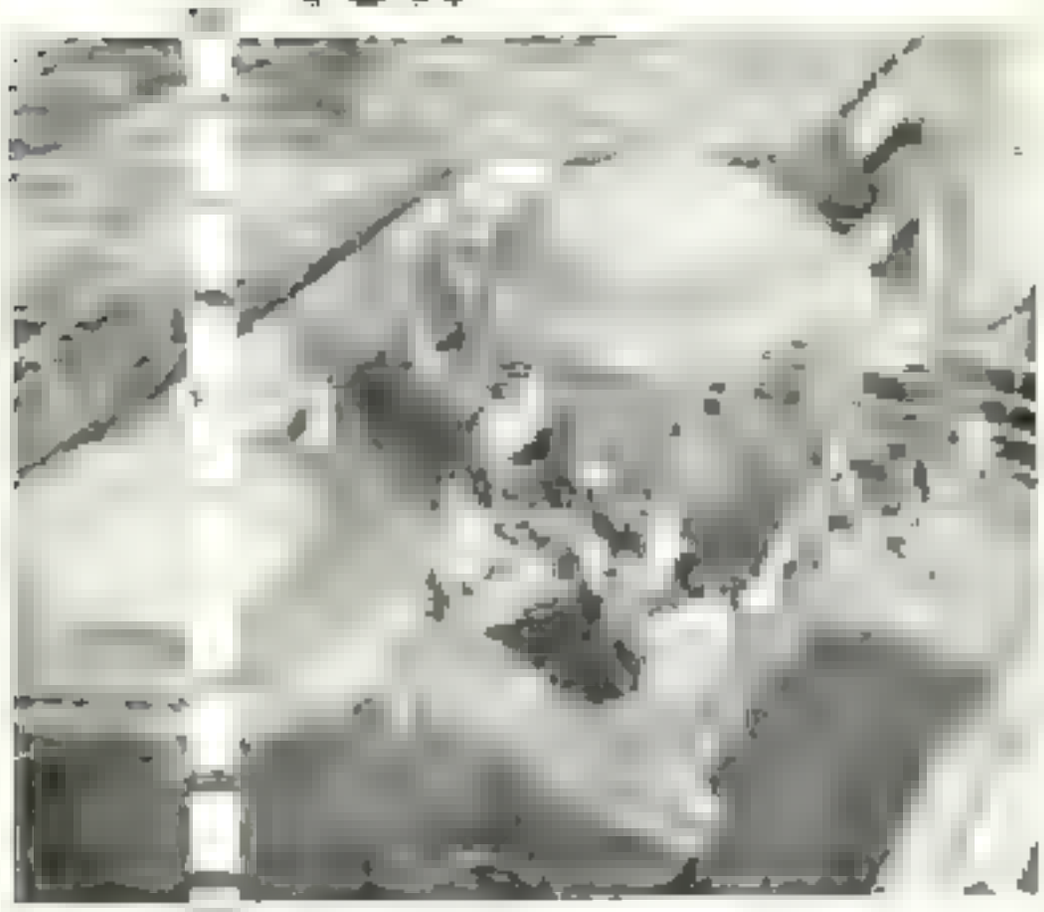
But those figures reflect a war production job to equal any other. The demand for milk [illegible] high during the war when the energy and health in milk were needed more than ever. The response from America's dairy farmers was magnificent. War time milk production was the biggest in history — [illegible] pre-war years.

We're glad to be Joe's partner in his important job. He produces the milk [illegible] at National Dairy, we process it, [illegible] to protect its quality all the way to [illegible]. We turn it into rich cheese, butter, ice cream and other foods that fulfill national needs [illegible].

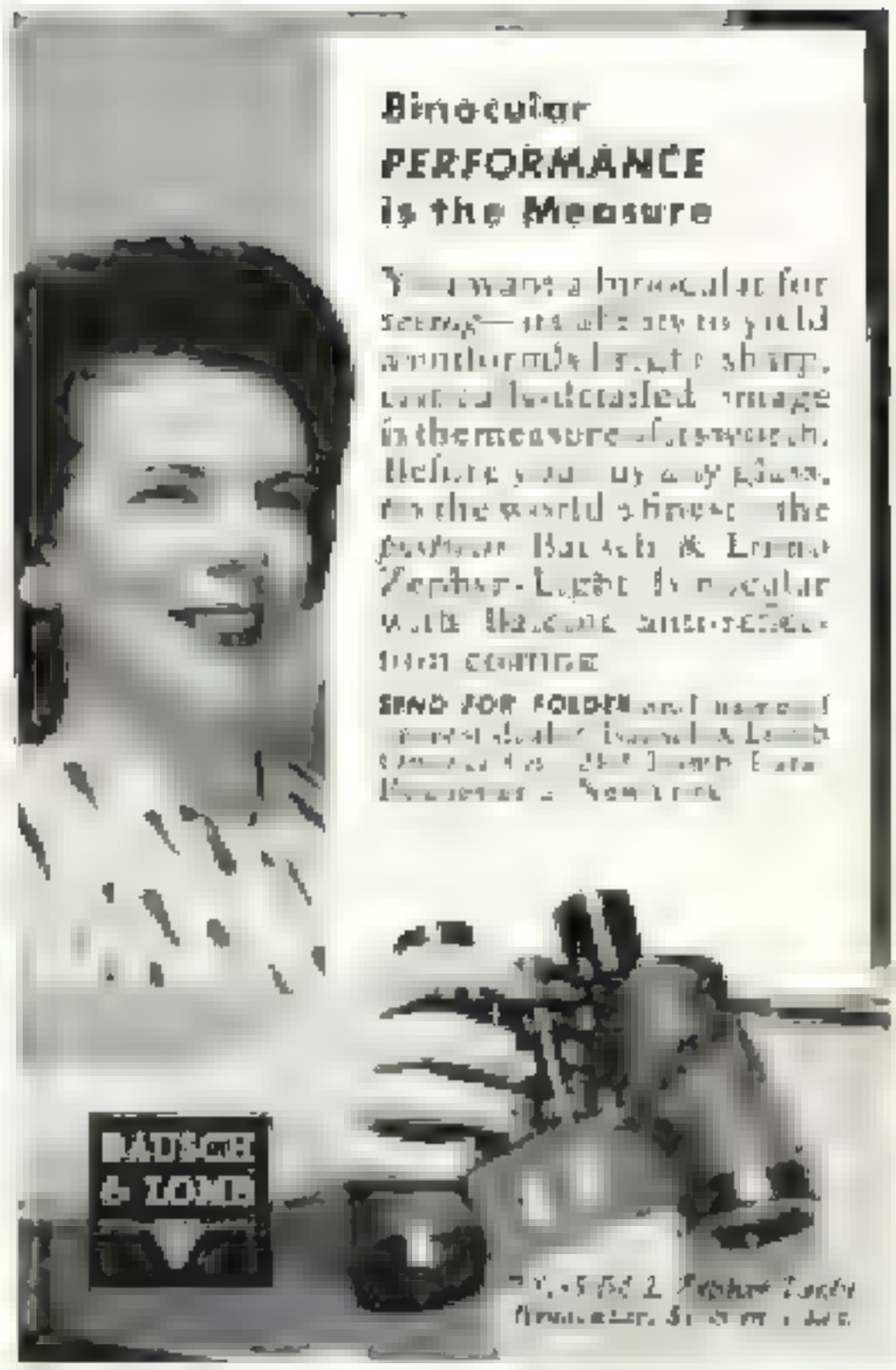
There's still much to be done [illegible] milk. Many minds and hands are working on it at National Dairy. And its contribution to the health of kids and future generations will be greater for what we do [illegible].

[illegible]

for a fortunate few



Delta Line



BEFORE MAKING PLANS TO TRAVEL IN GREAT BRITAIN AND IRELAND

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NEW YORK TELEVISION STATION
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CHRONOGRAPH

- The precision watch of mechanical perfection is consistently accurate.
- A calendar indicates day of the week, date, month and moon phases.
- A stop watch mechanism records time intervals from 1/5 seconds to 12 hours.

(Actual size 3/8 at illuminator)

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[illegible]

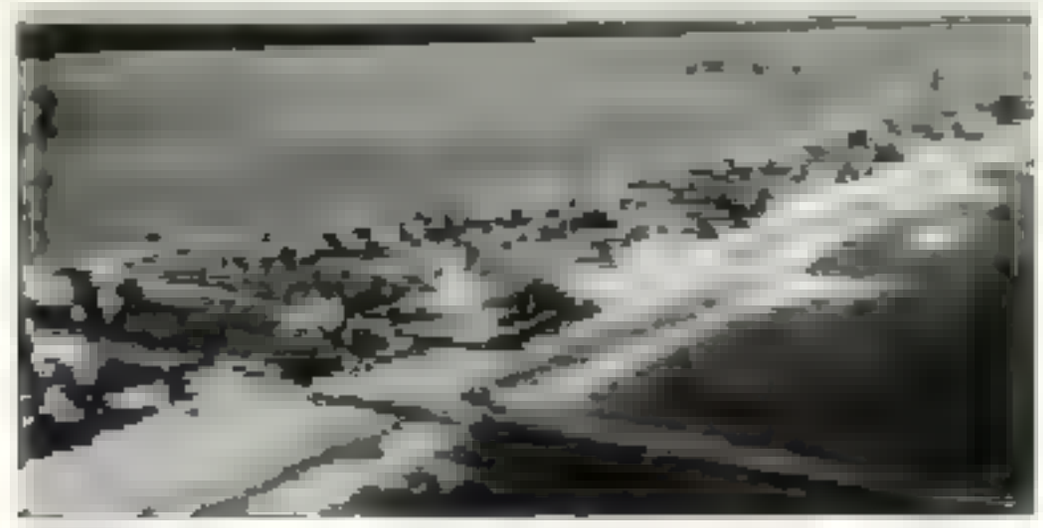
THE HENRI STERN WATCH CO. INC.

[illegible] Fifth Avenue, New York [illegible] 17, New York

Exclusive [illegible]

MORE FUN...LESS COST

And The Fishing is Out of This World!



SEASHORE or MOUNTAINS, North Carolina is more to see, more to do—MORE FUN . . . LESS COST. Here is America's most storied and [illegible] . . . 300 miles of sun-bathing and bathing. Deep-sea fishing is out of this world! A land crowded to the brim of America's earliest beginnings.

Some good places to see are the Great Smoky Mountains—the scenic Blue Ridge Parkway, which [illegible] TVA Lakes with excellent fishing and boating. Golf, too, and, please, when you travel in search America's most magnificent [illegible].

IT'S EASY TO TRAVEL NORTH CAROLINA [illegible] you will find when you get there [illegible]

Most places offer discounts after Labor Day. Mail coupon today.

$15,000 IN PRIZES
in Southeastern North Carolina's
Fall Fishing Rodeo

North Carolina

[illegible] Department of Conservation and Development, Raleigh, North Carolina

Please send illustrated folder, "North Carolina Variety Vacationland" and Travel Map

I prefer: [illegible] Mountains [illegible] Seashore

Name _____

Address _____

All the world's your napkin!

There is no other radio like Hallicrafters. High-precision instruments remembered by the veteran, preferred by the radio amateur, the choice of the music lover.

Models like the S-40A, only $89.50. Four bands, up to 43 Mc. Standard broadcast band included. Radio that is all radio in stock, satin-finished, functional steel cabinets. Or choose a Hallicrafters, handcrafted console combination. FM at its

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Please send me free literature and name and address of local dealer where Hallicrafters radio equipment can be purchased.

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Can you answer these questions on

HIGH BLOOD PRESSURE?

Q. What is high blood pressure?

A. High blood pressure, or hypertension, is a condition in which the pressure of the blood against the walls of the arteries and their smaller branches shows a persisting and large increase above normal. A temporary rise in pressure, such as may result from physical or emotional strain, is a normal reaction, and is NOT high blood pressure. However, if such rises occur frequently and are excessive, they may indicate a tendency toward hypertension in later years.

Q. What are the causes of hypertension?

A. Sometimes high blood pressure is associated with kidney or heart conditions, infections, or glandular disturbance, but the cause in most cases is unknown. It is known that hypertension occurs most frequently among those who are *middle-aged or older*, those who have a *family history* of hypertension, and those who are *overweight*.

Q. How does hypertension affect your health?

A. Persistent high blood pressure makes your heart work harder and nearly always results in enlargement of the heart muscle. The arteries are usually affected. There may be damage to kidneys, eyes, and other organs. Fortunately, *if discovered early*, hypertension can often be controlled.

If you have periodic physical examinations your physician will check your blood pressure regularly. His guidance can probably help you keep your blood pressure down, or, if it should go above normal and stay there, he may be able to start corrective measures at once, before serious damage has been done.

Real hope for those with high blood pressure

Thanks to medical science, people with high blood pressure can often avoid serious complications, and enjoy a long life . . . especially if the condition is discovered in its early stages.

In many cases treatment such as diets, rest, elimination of infections, reduction of weight at least to normal, and special drugs may be necessary. Surgery has been used effectively in some instances, and psychotherapy has proved helpful at times in removing fear of the disease.

Medical science is constantly increasing its knowledge of high blood pressure. Aiding in this work is the Life Insurance Medical Research Fund, supported by 150 Life Insurance Companies, which makes grants for special research in diseases related to the heart.

To learn more about this subject, send for Metropolitan's free pamphlet, 87-N, "Blood Pressure—Everybody Has It."

Metropolitan Life Insurance Company

TO VETERANS—IF YOU HAVE NATIONAL SERVICE LIFE INSURANCE—KEEP IT!

Meteorologist—Sioux style

According to legends of the Sioux Indians are stories of a secret cave, a cave of the winds, in the Black Hills of South Dakota.

This cave had a natural opening about ten inches wide. Through it, the ancient Sioux were supposed to enter their happy hunting ground. And from it, legend says, issued the life-sustaining wind.

Some [illegible] discovered that the cave could be used to forecast the weather. Knowing atmospheric [illegible] great art. For [illegible] into the cave. But when the [illegible] that stormy and pressure dropped, the air whistled out of the aperture. By placing his hand near the opening, the Indian could tell whether to take the hunting trail or stay snug in his tepee.

With that primitive "barometer," the Sioux did a pretty good job of foretelling the weather. But they had no way of learning in advance a storm's misfortune a lot more serious than bad weather. And neither does modern man!

But in coping with misfortune, man today is a lot better off than the Sioux. For he can provide, through modern insurance, for the losses which his misfortunes may entail. Think of this:

If you are hurt, accident insurance will help you meet your expenses while you're [illegible] — and pay your medical bills besides. If your house burns down, insurance will help buy a new one.

If thieves break in, burglary insurance will reimburse you for the loot they take away, the damage they leave behind. And through life insurance, you can make sure that those who depend on you for support will have an income, no matter what happens to you.

If you're not absolutely certain that you have enough of these and other kinds of insurance that you and your family need, why not see your Travelers agent or broker today?

MORAL: INSURE IN

The Travelers

ALL FORMS OF INSURANCE AND SURETY BONDS

The Travelers Insurance Company, The Travelers Indemnity Company, The Travelers Fire Insurance Company, The Charter Oak Fire Insurance Company, Hartford, Connecticut.

Kodascope Eight-33

The more-for-your-money home movie projector. Smart, sturdily constructed. Equipped with brilliant 50-watt lamp. Inspection lens. Adjustable reading speed, rapid motor rewinding of film.

Cine-Kodak Eight-25 and *Kodascope Eight-33* make the finest of home movies easy to shoot and show . . . easy to afford. They do so much for so little. They're so amazingly simple to use.

Though Kodak is making more cameras, projectors, and film than ever before, the demand is greater, too—so you may have to wait. Talk it over with your Kodak dealer . . . EASTMAN KODAK COMPANY, ROCHESTER 4, N. Y.

KODAK'S COMPLETE MOVIE SERVICE

All Kodak—and all designed to work together: *Cine-Kodak*, world's most popular movie camera. *Cine-Kodak Eight-25* and *Kodascope Eight-33* projector that gives your movies clarity and brilliance.

Kodak

"Ninety-five? I thought we were doing about sixty!"

Unless you're an [illegible] you can hardly believe the distance the Panama Limited is covering with a General Motors Diesel locomotive up at the head of the train.

The flow of power is so smooth that you get from here to there almost before you know it, at a hundred miles an hour a lot of the time.

The Panama Limited is just one example of how GM Diesel locomotives have stepped up schedules on American railroads.

This stepping up of schedules is one of the benefits that GM Diesel locomotives have brought to more than 150 [illegible] since [illegible] *trains follow better loco[illegible]*

transportation than a score of railroads and that is just about all of the Diesel powered crack trains in the United States. And in addition, these GM Diesel locomotives are so reliable that some railroads report as high as [illegible] "on time" arrivals.

No wonder more and more of the crack trains of the nation are being powered by these General Motors locomotives.

In the thirteen years since they first made their bow, they have helped the railroads reduce operating costs [illegible] and increased passenger traffic, because they made train travel [illegible] a pleasure.

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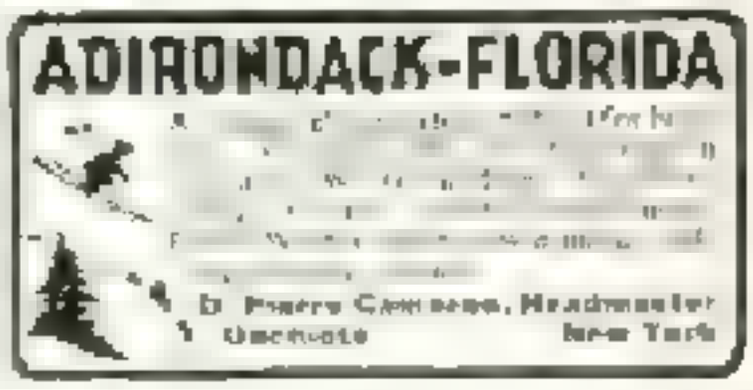

D. Pierre Cameron, Headmaster, Oscawana, New York

*DUES: Annual membership in United States, $4.00; Canada, $4.00; abroad, $5.00. Life membership, $100 U. S. funds. Remittances should be payable to National Geographic Society. Remittances from outside of continental United States and Canada should be made by New York draft or international money order.

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IN THE

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**The Membership Dues, Which Are for the Calendar Year, Include Subscription to the National Geographic Magazine*

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_____ *1947*

To the Secretary, National Geographic Society,
Sixteenth and M Streets Northwest, Washington 6, D. C.:

I nominate _____

Occupation _____
(This information is important for the record)

Address _____

_____ *for membership in The Society.*

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Name and Address of Nominating Member

R-47

MELTING SCRAP LEAD from discarded telephone cable. It is smelted and refined at a Western Electric plant. The lead ingots will return to service as new cable sheathing.

He's cooking up telephone service

The salvaging of worn-out equipment has always been important in the telephone business. It's more important than ever right now.

For it isn't just so many pounds or tons of lead and copper and zinc and steel that come out of it. It's telephone service.

Every bit of recovered material helps to relieve shortages and enables us to build more of the telephone equipment we need.

That means better, quicker service for everyone. It also brings telephone service nearer to those who may have been waiting for a long time.

So salvaging is more than salvaging these days.

It's the voice of a friend. A hurry-call to the doctor. A visit with someone in a distant city. Somebody's link with everything and everybody, everywhere.

BELL TELEPHONE SYSTEM

At the curb before I cross
I stop my running feet
And look both ways to left and right
before I cross the street
Lest autos running quietly
might come as a surprise
I don't just listen with my ears
but look with both my eyes.

Children's Safety Lesson No. 1 from "L-M-C Children's Safety Lessons" booklet, available on request.

"Please, Mr. Driver, Don't Forget Us!"

"Children's Safety Lessons" has been prepared in response to the nation-wide demand for safety instruction of children.

To Children:

You will enjoy having this little book. The pictures and the songs are just for you. Color the pictures with your crayons or paints. Learn the story with each picture. Sing each song. But best of all, play safely like the little girl and boy in the pictures. Remember what they say. Do what they do.

To Teachers:

We suggest that you teach one of the lessons each month of the school year. Upon request we will furnish you with an enlargement of each outline picture in poster form for your use in teaching.

To Parents:

Teach safety! Prevent accidents! Help the children learn the verses, sing the songs, color the pictures. The child who has been drilled in these Lessons should have a greatly improved chance of escaping the hazards of the highways unharmed.

To Motorists:

Heed the plea of the children, "Please, Mister Driver, Don't Forget Us!"

*Single copies of the "L-M-C Children's Safety Lessons" booklet are available to parents. Children enjoy learning safety habits with these 10 illustrated verses and pictures to color. Teachers—write for free enlargements of safety lessons and music, especially prepared for classroom use. Address requests to Dept. P.R.-2.

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